Sentiments on the Economy

How Economic News Affects Collective Economic Expectations and Behavior

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Juliane Lischka
Zürich, 22. Mai 2014

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Synopsis

Management summary

This cumulative dissertation relates three core objects of investigation within mass communication research by means of the economy.

a) Economic news: News topics, tone, consonance, volume;
b) Economic sentiment: Evaluations and expectations for the economic situation of the general public and economic experts;
c) Economic behavior: Purchase intention, sales and corporate advertising expenditures.

Economic news not only *reports on* the economy but can also *influence* its development, since the public as well as corporate sentiment and behavior are the link between economic news and the real-world economy. Citizens who make well-informed economic decisions are critical for an economy. Economic sentiments of private and corporate decision makers influence entrepreneurial behavior, such as investment behavior. Advertising expenditures are part of the marketing investments of a company and in turn are essential for the funding of media systems.

The research objective of this dissertation is to assess the relations between economic news, economic sentiment, and economic behavior, based on the following research questions.

RQ 1. How closely is economic news related to the real-world economy?

➔ Economic news relates to real-world indicators but is no copy of the aggregate economy. A stable relation found between real-world economy and news is that news reports more *consistently* after negative and less consistently after positive economic changes. Revenue incentives and organizational influences explain differences of news in *level* among private and between private and public service outlets. *Trend* changes are stimulated by real-world events.

RQ 2. How strongly does economic news influence both the public and expert economic sentiment?

➔ The *public* economic sentiment depends more strongly on real-world cues than on economic news. News does not have the power to shift public economic expectations without the "support" from real-world experiences. But economic *experts* rely on news when they evaluate private consumption. Experts may *presume* that news affects the public's behavior.

RQ 3. Does economic news influence private and corporate economic behavior?

➔ Although the public makes correct assumptions about developments in the national economy, economic news or expectations barely affect intentional economic behavior of the public. However, corporate advertising decision makers may *presume* that private consumption is geared by economic news and adapt advertising activity to their presumptions.

To conclude, economic news *reports* in a volatile manner on the economy but *barely influences* its development. Public economic sentiment is sometimes, but economic behavior is no result of economic news. Although bad economic news does not cause a decrease in private purchase intention, bad news may lead to a change in corporate advertising expenditures which can result in a decline in advertising income for media companies. Corporate decision makers may *presume* public behavior through implicit news cues. Therefore, economic news tone to some degree translates "into entrepreneurial decisions, particularly investments" (Noelle-Neumann 1987, p. 292) but hardly into private economic decisions.

Articles and abstracts

1. Lischka, J. A. (2014). Different revenue incentives, different content?: Comparing economic news before and during the financial crisis in German public and commercial news outlets over time. *European Journal of Communication*, *29*(5), 1-18. doi:10.1177/0267323114538851

   Abstract: This study argues that revenue model incentives determine news content. The goal to make profits and the need to sell audiences to advertisers guides journalistic selection and interpretation and results in commercialized news. We compare the volume, tone, and the obtrusiveness of topics of economic news stories for the German public broadcasters ARD and ZDF, the commercial broadcaster RTL, and the tabloid newspaper BILD from 2002-10 (n = 26'467). Results indicate that news selection processes are guided by revenue model incentives since volume and topic of economic news differ across revenue models. News interpretation also depends on the media type.

   Data: Economic news (news topics, tone, consonance, volume) of ARD Tagesschau, ZDF heute, RTL aktuell, BILD from 2002 – 2010.

2. Lischka, J. A. (accepted). What follows what?: Relations between economic indicators, economic expectations of the public, and news on the general economy and unemployment in Germany, 2002–2011. *Journalism & Mass Communication Quarterly*.

   Abstract: This study aims to understand dynamic agenda building and agenda setting processes between real-world indicators, public expectations, and aggregated news on the general economy and unemployment for two German public service broadcasters, a commercial broadcaster, and a tabloid newspaper from 2002 to 2011. Vector autoregressive and error correction models and Granger causality tests reveal that (1) news tone relates to real-world indicators, (2) public expectations for the general economy and unemployment are set by the tone of news on the general economy, especially during recession times, and (3) public expectations can forecast the future real-world economy.

   Data: Economic news on the general economy and on employment (news tone, consonance, volume) of ARD Tagesschau, ZDF heute, RTL aktuell, BILD in total; economic expectations on the general economy and on unemployment development of the general public; production index and unemployment rate; from January 2002 – June 2011.

3. Lischka, J. A., & Siegert, G. (2013). Beeinflussen Wirtschaftsnachrichten auch Wirtschaftserwartungen von Experten? Die Prognosequalität von öffentlich-rechtlichen und Service public Wirtschaftsnachrichten für Erwartungen von Wirtschaftsexperten in Deutschland und in der Schweiz. *Studies in Communication Sciences*, *13*(2), 174–184. doi:10.1016/j.scoms.2013.09.002

   Abstract: It is possible that economic news not only reports on the economy but also has an impact on the development of an economy by affecting economic expectations. This study explores the impact of economic news on the economic expectations of experts. A content analysis of economic news tone and volume of two German and one Swiss public service news show is combined with survey data on macroeconomic expectations of experts on the topics of the general economy, capital expenditures, and private consumption. Results confirm that past news tone explains up to 70

percent of the variation in economic expectations for private consumption. This effect varies among news shows and the overall economic situation. The authors hold media dependency and an asymmetric third-person effect responsible for these variations.

Data: Economic news of ARD Tagesschau and ZDF heute (news tone, volume); economic evaluations and expectations of economic experts; Q1 2002 – Q2 2011.

4. Lischka, J. A., Kienzler, S., & Mellmann, U. (2014). Sales drive advertising expenditures: Evidence for consumer packaged and durable goods in Germany. *International Journal of Marketing Studies*, *6*(1), 31–44. doi:10.5539/ijms.v6n1p31

   Abstract: The relation between sales and advertising is both complex and diverse. Whether advertising activities drive or follow sales is still unclear. We uncover this relation distinguishing between consumer packaged goods (CPG) and durable consumer goods (DCG) industries. We fit vector autoregressive models to sales and advertising expenditures of four CPG and three DCG industries in Germany from 1991 q1 to 2009 q4. Findings reveal that advertising expenditures do not increase total sales of industries according to the distribution hypothesis. According to the deterministic view, advertising budgeting is often influenced by previous sales and partly by future sales expectations. We conclude that past sales and partly sales expectations may change company and marketing goals that eventually affect the use of strategic communication instruments such as advertising.

   Data: Advertising expenditures and sales of four non-durable and three durable goods industries, Q1 1991 – Q4 2009.

5. Lischka, J. A., & Seufert, W. (2014). Messung von Werbewirkungen auf Makroebene. In G. Siegert, W. Wirth, J. A. Lischka, & P. Weber (Eds.), *Handbuch Werbeforschung* (pp. in preparation). Wiesbaden: VS Verlag.

   Abstract: This chapter deals with indicators for measuring macroeconomic development and aggregate advertising activities as well as with models for estimating advertising effects on industry level and nationally. Theoretically, on a macro level there are three possible relationships between advertising and industry sales, consumption, and macroeconomic growth: leading (advertising affects industry and national level), lagging (the development of the industry or national economy influences advertising behavior), none (advertising only shifts tastes and needs within product categories and these effects remain invisible on a macro level). Against this background, models for estimation and inference techniques are presented and the effects of the scope and frequency of aggregate data on advertising activities and macroeconomic accounting, the observation period, and the influence of structural changes on estimated results are discussed. Future research should account for the sometimes conflicting theoretical relations by systematically estimating efficient models.

Articles 1, 2, 3 and Chapter 5 are outcomes of the project, "The impact of economic media coverage on management expectations and advertising expenditures in Switzerland and Germany." Article 4 results from the project, "The impact of changes in advertising on the media. Cyclical and structural changes in advertising expenditure and advertising formats and their consequences for the media." Both projects were funded by the Swiss National Science Foundation.

1 Introduction

The media and the economy are dynamically connected. The outcome of a media system, i.e., its *news*, influences a society, its citizens, its corporate and governmental actors. Especially economic news, i.e, the result of journalistic information production on the economic system,[1] reveals a certain picture of the economy to the public, supports economic decisions and therefore indirectly affects the economy.[2] The *sentiment* on the economy is found to affect *economic behavior* such as private consumption or corporate investments, which in turn contribute to the general *economic situation* as measured by a country's gross domestic product (GDP).[3] The impact of economic sentiment on macroeconomic development has been under discussion for some years (Katona 1957); consumer confidence has more recently been described as an effective early indicator of GDP within economics circles (Kater 2008). Faced with the US subprime mortgage crisis, Stiglitz (2011, p. 23) stressed that, "Information enables readers—whether as consumers, managers, workers, investors, home owners, or voters—to make better decisions. Better individual decisions would have led to better societal outcome." Along with direct experience of the economy, the media serve as an important source of economic information (Blinder and Krueger 2004), alerting citizens to economic problems (Mutz 1992; Goidel and Langley 1995). Yet not only public but also corporate economic sentiment can be subject to news effects. The latter was just recently brought into focus of research.

This dissertation explores the impact of economic reality on economic news, the impact of economic news on public and expert expectations concerning economic issues, and consumer and corporate economic behavior. The impact of the news on public opinion is a major research area within mass communication science. The question that has to be asked beforehand is whether news can *reflect reality*. This has been an issue in news bias studies for decades (e.g., D'Alessio and Allen 2000; Hackett 1984; Klein and Maccoby 1954; McQuail 1992). This dissertation uses this research to explore how reliable economic news is as source for the real-world economy and asks the following question.

RQ 1. How closely is economic news related to the real-world economy?

First- and second-level agenda setting explain how the prevalence of news objects and attributes influences what the public thinks about and how it thinks about it (McCombs 1992; McCombs and

[1] This definition of economic journalism grounded on the subject of the economy is based on Mast (2012, p. 80). For Schöhl (1987, p. 13), economic or business journalism comprises all areas of economic policy, industry and business news as well as minor topics, such as economics of education, health economics, social policy or industrial relations. Hence, economic news cannot only be found in the business section of a newspaper but also in the political and local section or sports and the feuilleton. Therefore, Heinrich and Moss (2006, p. 11) call economic news a cross sectional area. Also Heinrich and Moss (2006, p. 10) define economic journalism with a broad field of topics comprising news about people, companies, institutions, and organizations of the economy, markets, industries, sectors, the national and the global economy as well as economic functions and roles of people as employees, entrepreneurs, savers, consumers or tax payers. The role of economic experts can be added to this list of roles. Compared to other editorial beats or departments, Schöhl (1987, pp. 49–56) and similarly Heinrich and Moss (2006) as well as Arlt and Storz (2010) (after the financial crisis) describe economic news in newspapers as partly well verifiable, little critical and little distant, potentially dependent on advertising clients and publishers, and yet dealing with insecure, complex and abstract topics lacking visual and entertaining potential for broadcast coverage. Therefore, the topical diversity of economic news may be broader in newspapers than on TV. Mast (2012) as well as Arlt and Storz (2010, p. 20) argue that for quantity and modality of economic news of a certain outlet, the media type and editorial slant are the determining factors.

[2] Mast (2012) stresses that economic processes and decisions do not occur in public in contrast to political processes. Therefore, economic journalism primarily produces publicity which is also argued in Heinrich and Moss (2006, p. 16). Mast (2012, p. 60) distinguishes functions of economic journalism in *society*, such as producing publicity, surveillance of society as early-warning system, critique and control of economic actors, articulation of different positions in economy and society, from performance for the *economy*, such as supporting the flow of information within the economy, spreading of innovations, supporting market transparency, orientation, explanation and decision guidance for the economic decisions of the audience.

[3] Also business investment, imports, exports, and government spending contribute to the GDP as described in Lischka and Seufert (2014).

Shaw 1972). Cultivation theory suggests that public sentiment is generated by television images of the world (Gerbner 1969). According to mediatization and growing dependence on media as source of information (Strömbäck 2008), the news plays an increasingly important role in public sentiment. Research on economic news and economic sentiment was established decades ago within the field of mass communication (Behr and Iyengar 1985). This dissertation investigates how powerfully economic news *affects economic sentiment* of the public and of economic experts and asks the following question.

RQ 2. How strongly does economic news influence both public and expert economic sentiment?

Agenda setting research often investigates the impact of economic news on public opinion, more rarely its impact on economic behavior. Citizens who make well-informed economic decisions are essential to an economy. But how strongly public economic sentiment *sets economic behavior* has not been clarified yet. The economic sentiment of private or corporate decision makers also translates "into entrepreneurial decisions, particularly investments" (Noelle-Neumann 1987, p. 292). For scholars of media economics, one research focus is the *financing of media* companies and products that fulfil important functions within a society, such as offering information[4] to citizens. Many media systems rely on advertising as an income source to fund their media products. Without advertising, media diversity would probably decline and many media products might be accessible only at a high price, making them exclusive to the elite (Gustafsson 2006). Hence, corporate advertising expenditures contribute to the merit good character of the media. These advertising expenditures are subject to a complex budgeting process in which the business cycle and sales play a key role (Kienzler and Lischka 2013; 2014; Kienzler, Lischka and Siegert 2012). This dissertation therefore asks the following.

RQ 3. Does economic news influence private and corporate economic behavior?

This dissertation therefore also links media economic research with the core research field of mass communication studies.

Empirically, data on the following research objects are linked.

a) Economic news: News topics, tone, consonance, volume;
b) Economic sentiment: Evaluations and expectations for the economic situation of the general public and economic experts;
c) Economic behavior: Purchase intention, sales and corporate advertising expenditures.

For analysis, times series modelling is applied to aggregate secondary data in four papers: Lischka (2014); Lischka (accepted); Lischka and Siegert (2013); Lischka, Kienzler and Mellmann (2014). A fifth paper discusses standard procedures when measuring the advertising-sales relation on a macro level focusing on time series approaches: Lischka and Seufert (2014).

Data used in this dissertation derive from publicly available sources such as Eurostat and the German Federal Statistical Office (real-world economy: national economy, industry sales), the consumer survey of the European Commission (public sentiment: economic expectations; behavior: purchase intentions), the world economic survey of the Ifo institute (expert sentiment: economic evaluations and expectations), Nielsen Media Research, as published in the journal *Media Perspektiven* (behavior: corporate advertising expenditures) as well as from the corporate source, Media Tenor—not available to the general public—which analyses economic news content (media sentiment: economic news coverage). Observation periods cover the years 2002 to 2011 for economic news and public opinion (RQ 1, RQ 2), 1991 to 2009 for the relation between advertising and sales (RQ 3), and 2002 to 2009 for the

[4] Media also offer entertainment which is beneficial to the society as discussed from a quality perspective for public service broadcasts in Siegert, von Rimscha and Sommer (2014).

relation between economic news and advertising (RQ 3). The data frequency is monthly (economic news, public opinion) or quarterly (economic expert opinion, advertising-sales relation). The population comprises the main public-service and private news outlets in Germany (analyzed in Lischka 2014), the general public in Germany (analyzed in Lischka, accepted), economic experts in Germany and Switzerland (analyzed in Lischka and Siegert 2013), and companies within the packaged consumer goods industries of food, drinks, tobacco, as well as health and pharmaceutics, and the durable goods industries of textiles and clothing, shoes and leather goods, as well as automobiles in Germany (analyzed in Lischka, Kienzler and Mellmann 2014). An overview on sources and descriptive of all secondary data used can be found in the Appendix, Table 5.

The empirical investigation of the dynamic relations between economic news, economic expectations, and private as well as corporate economic behavior are new. The empirical articles of this dissertation (Lischka 2014; accepted; Lischka, Kienzler and Mellmann 2014; Lischka and Siegert 2013) apply *n*-th-order VAR models in the basic form of

$$(1a)\ \Delta Y_t = \alpha_1 + \beta_{11}\Delta Y_{t-1} + \beta_{12}\Delta Y_{t-2} + \ldots + \beta_{1n}\Delta Y_{t-n} + \lambda_{11}\Delta X_{t-1} + \lambda_{12}\Delta X_{t-2} + \ldots + \lambda_{1n}\Delta X_{t-n} + \varepsilon_{1t}$$

$$(1b)\ \Delta X_t = \alpha_2 + \beta_{21}\Delta Y_{t-1} + \beta_{22}\Delta Y_{t-2} + \ldots + \beta_{2n}\Delta Y_{t-n} + \lambda_{21}\Delta X_{t-1} + \lambda_{22}\Delta X_{t-2} + \ldots + \lambda_{2n}\Delta X_{t-n} + \varepsilon_{2t}$$

with α being the constant, ε_t being a zero mean white noise process with time-invariant covariance matrix, to measure autoregression (β_1 and λ_2) and short-term impacts (λ_1 and β_2) between the variables of interest and test *directional* Granger causality (Granger 1969).[5] A VAR model is a system of equations that estimates the mutual development of a set of variables over a sample period as a linear function of their past values (Sims 1980). VAR models incorporate the past of one variable to forecast the present of another variable (Y_t, X_t).[6] Because VAR models can only be applied to stationary data without time trends (Lutkepohl 2004), non-stationary data are converted into first differences ($Y_t - Y_{t-1}$, Δ) to achieve trend stationarity and avoid estimating spurious relations. Hence, estimated VAR models and Granger causality identify a *short-term forecasting ability* of a *change* in a certain variable to another *beyond* univariate autoregression (β_1 and λ_2).[7]

This synopsis is complementary to the dissertation articles. The synopsis theoretically and empirically traces the relations between economic news, economic expectations, and economic behavior. It defines the theoretical pillars (Chapter 2) and discusses the results of the dissertation articles in a broader theoretical context according to the three research questions starting with news making (RQ 1, Chapter 3), followed by the influence of news on economic sentiment (RQ 2, Chapter 4) and the influence of news and economic sentiment on economic behavior (RQ 3, Chapter 5). The synopsis provides additional analyses on the relation between public sentiment and behavior, as well as on the relation between economic news and advertising expenditures (RQ 3, Chapter 5). Chapter 6 provides the overall summary and conclusions.

[5] Granger causality tests whether the lags of a variable Y helps to forecast another variable X at time t and therefore goes beyond symmetric, bivariate correlation or covariance. The null hypothesis that X does not Granger cause Y in (1a) is that $\lambda_{11} = \lambda_{12} = \lambda_{1n} = 0$ and that Y does not Granger cause X in (1b) is that $\beta_{21} = \beta_{22} = \beta_{2n} = 0$. The VAR model has already accounted for the effects of past values of Y on Y_t as well as past values of X on X_t (and past values of further variables if included). Dynamic VAR models are therefore a good foundation for testing Granger causality.

[6] With VAR, contemporaneous and long-term relations are *not* considered.

[7] All VAR models were estimated using a small-sample degrees-of-freedom adjustment when estimating the error variance-covariance matrix and reports small-sample t and F statistics as described in stata.com (p. 11).The average number of parameters are considered for the small-sample degrees-of-freedom adjustment for the matrix of residuals. For the F or t distributions, the standard errors from each equation are computed using the degrees of freedom for the equation instead of chi-squared or standard normal distributions.

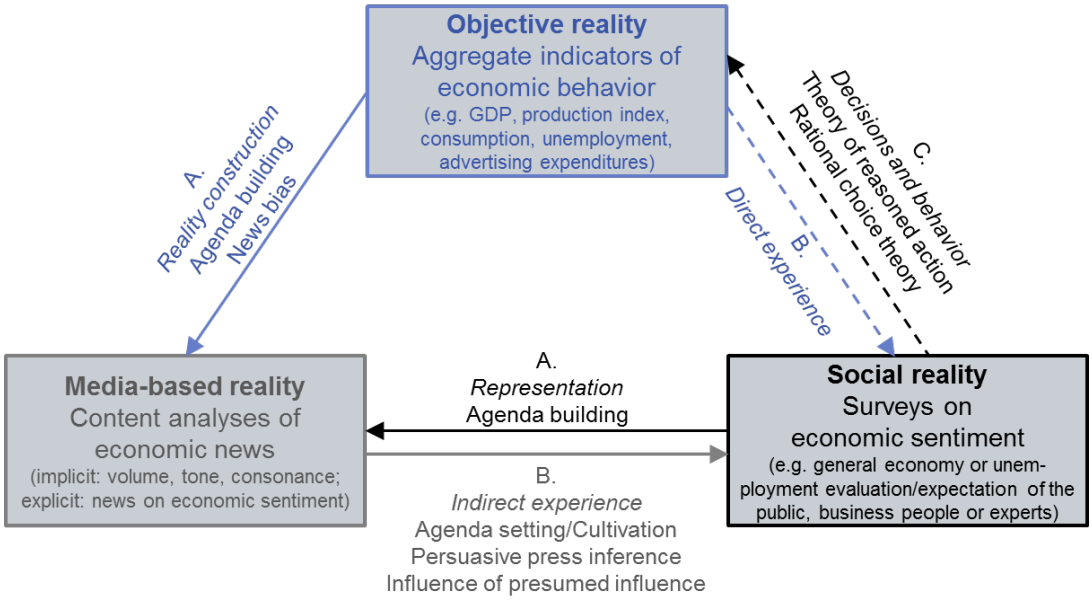
2 Theoretical considerations

This chapter develops a theoretical model combining real-world economy, economic news and economic sentiment to objective, media-based and social realities (2.1), connects the macro to the micro level of the social reality as well as sentiment and behavior to explain collective effects on the macro level (2.2), and traces the temporal relations between the three realities (2.3).

2.1 The triangle of objective reality, media-based reality, and social reality

The goal of this section is to trace the relations between the real economy on the level of objective reality, economic news on the level of media reality, and economic expectations and behavior based on theory. Following Bonfadelli (2004, p. 237), these relations can be illustrated in a triangle of the agenda-setting process as displayed in Figure 1. Figure 1 also summarizes the major theoretic approaches, which help to explain the relationships between the three realities, and the data, which is typically used to measure each type of reality. The media-based reality is usually measured using content analyses, the social reality with surveys, and the objective with real-world indicators. The latter represent aggregate economic behavior of economic agents on a micro level.

Figure 1: Triangular relations between objective, media, and social economic reality



Source: Compiled by the author based on Bonfadelli (2004, p. 237).

Note: Indicators of the real economy are categorized in a threefold manner: a) leading indicators that are affected early on, such as economic sentiment or intermediate input goods; b) coincident indicators such as the GDP, industry production or retail sales; c) lagging indicators such as the labor market including employment numbers, wages and salary history as well as inflation and consumer prices (Kater 2008). Indicators of the economic situation in the media-based reality can be implicit—e.g. economic news tone, or explicit—e.g. reports on the development of the GDP. An explicit indicator of the public's economic sentiment is e.g. news reports on the results of surveys on consumer or business sentiment. Adrangi and Macri (2011) state that economic news on results of consumer confidence surveys play an important role for business decision making. Consumer or business sentiment are considered to be leading indicators of the state of the economy (Kater 2008). Indicators of social reality are the evaluations or

expectations of different social groups on economic issues. Based on surveys of the public, sentiment indices such as the University of Michigan's Index of Consumer Sentiment (ICS) are published which are subject to news reporting and are considered leading indicators for the economy (Hagen 2005; Lischka and Siegert 2013). Such indices are also computed for business people and economic experts.

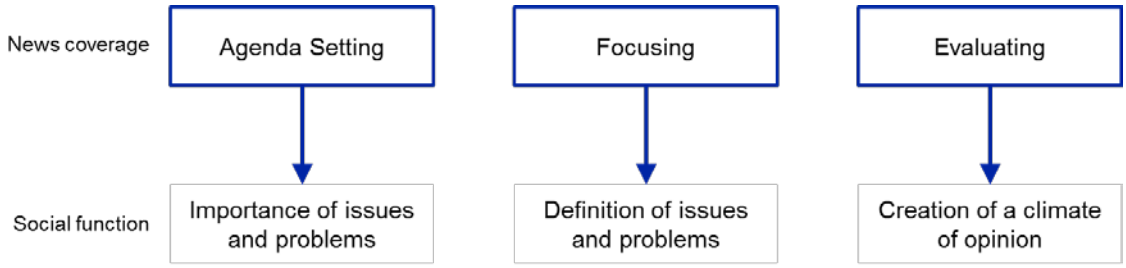
For each reality, the relations are theoretically traced in the following.

A. The question whether news can reflect reality has been an issue in news bias studies for decades (see e.g., D'Alessio and Allen 2000; Hackett 1984; Klein and Maccoby 1954; McQuail 1992). Objective reality can *build* the agenda for news, on first or second level (reality construction arrow, Figure 1). The concept of media-based reality suggests that the picture of reality offered by media coverage is different from objective reality. Although media reality is regarded as constructed fragment of the objective reality (Kepplinger 2011), it is tied to socially binding models of reality and its social reference mechanisms (Weischenberg 1994). Media reality depends on norms, structures, and actors that are organized on the meso level of the profession's and the media company's formal and informal rules and conventions (Altmeppen 2006, p. 119). Demers et al. (1989) emphasize that news coverage responds to public concerns such as the unemployment rate and therefore reflects a larger social system. This way, consumer sentiment, as one element of social reality, also becomes part of media reality (representation arrow, Figure 1).
   Macro, meso, and micro factors influence news making (Shoemaker and Reese 1996). News making (Halloran et al. 1970) is influenced by news values (Lippmann 1922; Östgaard 1965; Schulz 1976), role conceptions or personal predispositions of a journalist (Weaver et al. 2007), and also commercial constraints, resources or the degree of competition (Beam 2003; Picard 2004; Russi 2013) among many other factors. The concepts that journalists have of their role range from disseminating information to mobilizing the public, and mainly to interpret reality (Weaver et al. 2007, p. 146). The degree to which journalists interpret reality describes Strömbäck (2008) as phase four of mediatization. These interpretation and selection processes can lead to biases in news topics, frames, volume, or tone. Hagen (2005) assumes that economic journalists draw conclusions hastily or over-interpret trends. Therefore, economic news is often characterized as negative (see Brettschneider 2003, and Wörsdorfer 2005 for Germany; Lowry 2008 for the USA) and fails to reveal the complexity of the economy (Hagen 2005). Depending on the strategic focus and the programming mandate, news content differentiates among news media (Beam 2003).[8]
B. An individual's opinion on a certain topic is a result of direct experiences, the experiences of reference groups, interpersonal communication, one's own as well as other people's opinion, and information gathered from the media (see e.g., Ball-Rokeach and DeFleur 1976; Gerbner 1969; McCombs and Shaw 1972; Schenk 1997; Scherer 1990). The model of media dependency (Ball-Rokeach and DeFleur 1976) states that the more important the news is as source of information for the public, the stronger the resulting media effects (indirect experience arrow, Figure 1). Conversely, the more direct one's personal experiences on a given topic, the weaker the news influence (direct experience arrow, Figure 1).

[8] This paragraph was part of the author's submission, "How Real is Economic Mass Media Reality? Comparing the Real Economy and Economic News in German News Outlets," to the 2013 Conference of the International Communication Association.

News media play an important role in the public's agenda (Iyengar and Kinder 1987; McCombs and Shaw 1972; Shaw and McCombs 1977; Trenaman 1961).[9] By paying closer attention to certain topics than to others, news can change the salience[10] of these topics among the public and therefore set the public agenda. Agenda-setting effects depend on the "…degree to which the media constitute the most important or dominant source of information" (Shehata and Strömbäck 2011, p. 234), the need for orientation or familiarity with the topic (Matthes 2006; Wu and Coleman 2009) or the credibility of a news outlet (Wanta and Hu 1994). In addition, when focusing on a certain topic, news defines issues and problems (Noelle-Neumann and Mathes 1987). On a second level of public agenda setting, the attributes of a topic or an object of the media agenda become part of the public agenda. Emphasized attributes are more accessible to the audience than those that are not emphasized. Therefore, news sets *how* the public thinks about certain topics (Ghanem 1997).[11] According to Noelle-Neumann and Mathes (1987, p. 409), the *evaluation* in news reports creates a certain *climate* or *sentiment* of public opinion (see categorization in Figure 2). This evaluation can occur through implicit judgments, including frames, and explicit judgments of cited actors or journalists in news stories.

Figure 2: Aspects of reporting and their social function



Source: Noelle-Neumann and Mathes 1987, p. 409.

Comparing effects on the first and second level of agenda setting, Wu and Coleman (2009) show evidence that second-level effects are stronger than first-level effects. For the second level, news objects (e.g. the state of the economy) can be divided into attributes with a substantive dimension—e.g. unemployment, and an affective dimension—e.g. positive, negative or neutral (Maher 2001; McCombs and Ghanem 2001). The affective dimension incorporates the tone of news and ascribes a valence to an attribute that might affect how people think about it. Hence, news tone and its consonance are related to the second-level of agenda setting or evaluating (Figure 2).

[9] The media reality potentially *sets* the public agenda serving as an indirect experience. This relation is of major interest for communications science scholars and many theories and hypotheses were proposed. That media influences what or how people think about certain issues can be explained by first- and second-level agenda setting or cultivation theory. Mass media effects on recipients can occur on the cognitive, attitudinal, and behavioral level in general. The early "strong effects" paradigm on media effects expected a causal relation between mass media content and mass behavior. Although this paradigm is outdated, a long-term cumulative path from the media agenda to behavior can be drawn employing agenda setting or cultivation. Cultivation theorists as Gerbner (1969) have argued that media coverage is means to reality construction of the public. Further, the public develops beliefs about the beliefs of the public according to Fields and Schuman (1976).

[10] According to Schenk (1997), public awareness is a result of media use but salience is a result of involvement, interpersonal communication, and individual importance of an issue.

[11] This effect is also described with second-order cultivation by Hetsroni and Lowenstein (2012). According to Hetsroni and Lowenstein (2012, p. 322), a second-level agenda-setting effect refers to the opinion towards an issue whereas a second-order cultivation effect incorporates resulting sentiment and expectations.

Whereas the first- and second-level agenda-setting function states *that* the media agenda and its attributes transfer to the public agenda, this model does not offer a micro-level explanation of *how* this process occurs. Economic sentiment can develop from experiences people make at their workplaces, hear from friends and family and perceive in their environment, from their attitude towards economic policy decisions, and from economic news. Gunther (1998, p. 487) assumes that "People may estimate public opinion based on the expressed opinions of friends and acquaintances, or from the speeches of politicians, the actions of prominent people, or published interviews with opinion leaders. They may extrapolate from news of demonstrations, strikes or riots, 'man in the street' interviews, or even from letters to the editor." Therefore, the *slant* of news even only broadly related to a given topic may set a personal opinion and a perceived public opinion whereas both may differentiate from each other (Gunther 1998).

Hagen (2005, pp. 294–309) argues that the public opinion on the economy depends on heuristics and the mental organization of economic knowledge. The gratification of orientation through information motivates news reception. News serves as routine environment monitoring, as a basis for economic decision making, and as a cause for interpersonal follow-up communication. Still, for the majority of the public, bounded rationality leads to superficial cognitive processing and deficient representation of economic information (Hagen 2005, pp. 294–309). Because of subjective perception or bounded rationality, the public may use inference heuristics such as the persuasive press inference (Gunther 1998, p. 486) to form economic expectations based on implicit news cues: "People infer public opinion from their perceptions of the content of media coverage and their assumptions of the persuasive impact of that coverage on others." That is, people also *presume* to know public opinion based on news coverage (Gunther 1998, p. 486). This may be the case for business people who rely on economic behavior of the public. An observation by Soley and Craig (1992, p. 7) shows that entrepreneurs assume a connection between economic news and consumer behavior, as an editor reported more than 20 years ago: "…the car dealers […] want all stories involving auto sales to have a rosy outlook, and they whine about negative economic stories, even if they're on a national level from AP." This example shows that not only the public but also entrepreneurs may "assume that what mass media are saying today must be what the public will be thinking tomorrow" (Gunther 1998, p. 487) and presume that the public acts according to economic news. This "social construction […] of audience distortions of reality" (Diefenbach and West 2012, p. 332) can also be integrated into cultivation theory as the third-person projections affect the beliefs about the behavioral outcomes of others. Therefore, the third-person effect can explain why cultivation evolves (Diefenbach and West 2012).

News can be an additional information source that predominantly influences *sociotropic* perceptions (Hagen 2004; Mutz 1992), i.e., the perception of unemployment or the economy as a social instead of a personal problem. Hence, even when individuals experience unemployment themselves or among family and friends, this issue may be regarded as an important public issue only when it is reported in the news. Only then can the extent of the problem be recognized and expectations for the development of unemployment in a country be developed. As a result, one could argue that economic sentiment depends on the individual media usage. Therefore, scholars referring to a *tight* definition of media effects assume different ways of reporting per media outlet, and analyze effects on an *individual* level using content analysis and panel surveys. Yet news "bring[s] different people and groups together, including people of different levels of formal education and even, to some degree, people with very different annual incomes" (McCombs 1992,

p. 822). Following a *universal* or *broad* approach of media effects, news may lead to an increase in the perceived importance of an issue, which instigates follow-up conversations. Follow-up conversation spreads media content also to non-users of the media and constitutes a *universal* or *collective media effect*. This assumption neglects effects of different media usage of people and allows for the conducting of analyses on an *aggregate* level.

The collective media effect supposes that the *dominating* media message reaches people directly or indirectly and people will adapt their opinion and expectations according to it (Maurer 2004, p. 410). Indeed, research reveals identical news effects on the agenda of heavy and light media users applying time series analyses (Krause and Fretwurst 2007; Krause and Gehrau 2007). The difference is the speed of the news effects which is slower for light news users. This result is in line with the sticky information approach, indicating that the spreading of news is delayed across the public and an updating process on economic issues occurs only every six months or even less often (Döpke et al. 2008). Thus, changes in the economic expectations of the public occur with a delay.

A powerful influence of collective media effects is the news *consonance* across outlets (Noelle-Neumann 1973; Noelle-Neumann and Mathes 1987). The more consonant media coverage and tone is, the stronger are the media effects on the public (Hagen 2005, p. 30; Maurer 2004, p. 410; Peter 2003; 2004). If the media coverage is *not* consonant across outlets and people change their opinions according to their media use, *individual-level* analyses show a more accurate picture of media effects than aggregate analyses. Although media outlets can be differentiated from each other with regard to contents or editorial slant (Mast 2012; Spachmann 2005), this dissertation assumes a rather consonant economic news coverage across major news outlets in Germany based on previous research (Degenhard 2011; Eilders 2002; Jarren and Vogel 2009; Noelle-Neumann and Mathes 1987) and therefore explores news effects on the public as a collective effect on an aggregate level. Yet differences in economic news per news outlet are investigated. Hence, this dissertation also takes up the question raised by Scheufele (2008) how news effects on a macro level can be theoretically explained and empirically tested.

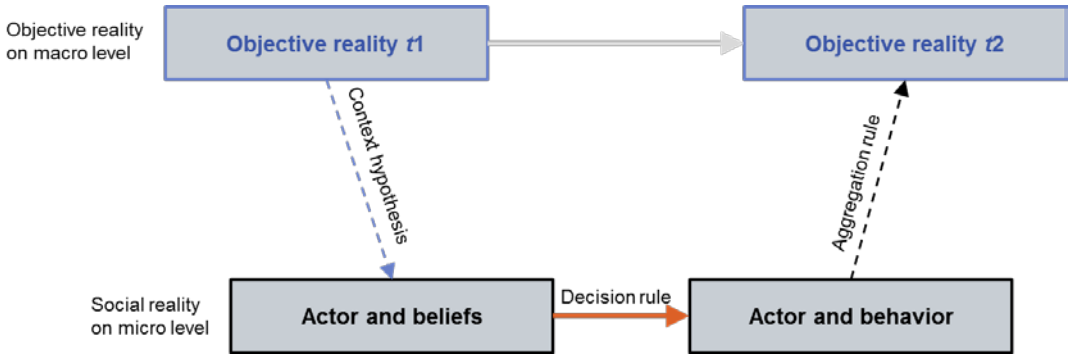
C. Economic sentiments in turn may guide economic decision making and behavior such as whether to purchase goods or to save money (decisions and behavior arrow, Figure 1). The model of the influence of presumed influence (Gunther and Storey 2003) also proposes that people react according to what they perceive the general public will do. Iyengar and Kinder (1987) argue that when making decisions, recipients may rely on the topics that are most salient to them due to agenda setting. Sei-Hill, Scheufele and Shanahan (2002, p. 21) stress that this is a priming process which is "a key process for decision-making." As a result, after establishing attitudes and expectations, these should affect behavior according to the theory of reasoned action (Ajzen and Fishbein 1977; Fazio 1986). This is the micro explanation of why consumer or business sentiment on the economy is considered an early indicator of the economy (Kater 2008).

The link between social and objective realities is the behavior of economic actors on a micro level, which in turn adds up to aggregate economic indicators on a macro level. This connection is relevant to explain relations between social and objective reality and is theoretically discussed in the following section.

2.2 The relations between the micro and the macro level

To infer aggregate behavior on a macro level, the micro foundations on an individual level outlined above (C.) serve as a powerful explanation. The macro-micro-macro model established by Coleman (1986) or the model of sociological explanation as developed by Esser (1999) offer a theoretical basis for the connection of the macro and the micro level. On a micro level, individual beliefs or sentiments transfer to "orientations to economic behavior" (Coleman 1986, p. 1322) which is often explained by rational choice theory (Greve, Schnabel and Schützeichel 2009, p. 9). Esser (1993) extends this meta theory with concepts of the logic of the situation, selection, and aggregation to explain macro phenomena through the "detour" on individual attitudes and resulting actions on a micro level (Greve, Schnabel and Schützeichel 2009, p. 8). Therefore, collectivistic-holistic and individualistic-reductionistic perspectives can be combined and *collective effects* become the central object of explanation which are results of the logic of aggregation (Greve, Schnabel and Schützeichel 2009, p. 8). This macro-micro-macro model is illustrated in Figure 3. The aggregate level of the objective economic reality at time *t*1 constitutes the context of public beliefs on a micro level transferring to public behavior which in turn aggregates to the objective reality at time *t*2.

Figure 3: Macro-micro-macro model of collective effects



Source: Compiled by the author based on Greve, Schnabel and Schützeichel (2009, p. 8).

According to Coleman (1990, p. 198), there are three general properties in collective behavior.

1. "They involve a number of people carrying out the same or similar actions at the same time."
2. "The behavior exhibited is transient or continually changing, not in an equilibrium state."
3. "There is some kind of dependency among the actions; individuals are not acting independently."

Coleman (1990) uses bank and stock market panics as an example of collective behavior. The economic behavior of private individuals may not entirely fit the definition of collective behavior since people may act independently due to their individual income expectations (Katona 1974; 1975). Their actions may not directly affect others' actions and vice versa. Yet to assess whether it is a good moment to make major purchases it may be rational to *orient oneself* towards the opinion and actions of other members of society especially when the economic situation is insecure. Therefore, major purchase decisions have single- and may acquire double-contingency characteristics.[12] Shiller (2005, p. 85) argues in his book

[12] Coleman (1990, p. 902) describes single-contingency collective behavior as having, "a feedback loop from the actor's current action through its consequences to the actor's future actions. He uses information about others' previous actions to better predict those

Irrational Exuberance that "...significant market events generally occur only if there is similar thinking among large groups of people, and the news media are essential vehicles for the spread of ideas." Hence, when actors' beliefs are made similar, for example through news reports, their behavior will be alike and changes in aggregate market results such as private consumption should be visible. For example, sunspots deriving from self-fulfilling prophecies or herding behavior may lead to similar economic behavior.[13]

A *corporate* agent acts purposefully, considering the interests of the multiple principals and agents of the company (Coleman 1990). One area of corporate decision making are advertising activities. Seeing advertising budgeting decisions from a macro-micro-macro model of collective effects, advertising budgeting depends on the beliefs that the decision is based on. A crucial belief are sales expectations (Kienzler and Lischka 2014; Lischka, Kienzler and Mellmann 2014) which in turn may also depend on the perception of public economic sentiment. Therefore, corporate actors will also consider their customers' (assumed) behavior when taking action.

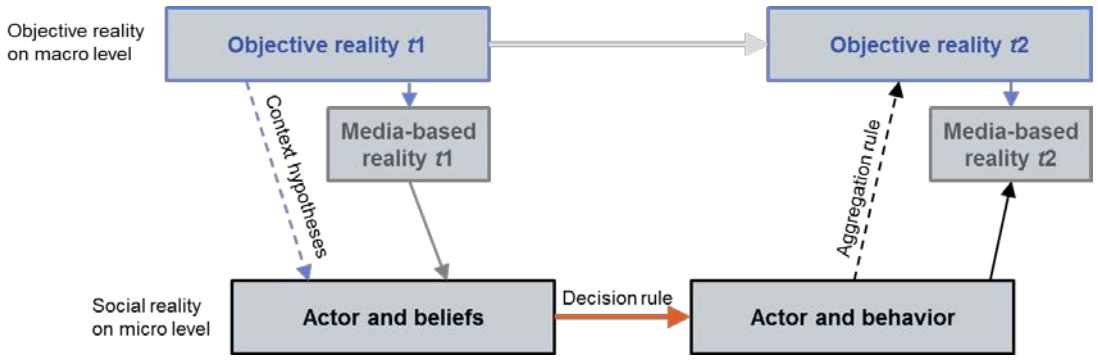
Yet the aggregation may conceal inter-individual or -company differences in private or corporate economic behavior. Scheufele (2008) lines out the dilemma when aggregating using the example of lay and professional investor behavior in stock markets. He points out that the role of media and the social environment as well as the readiness to assume risk differ on the micro level. When using secondary data on the aggregate level, these micro differences and social dynamics are not evident anymore. On the other hand, changes in behavior that is caused by media coverage is only relevant *when* there are visible changes on the macro level (Scheufele 2008, p. 349). Hence, even when inter-individual and -corporate differences remain hidden on a macro level, the collective behavior potentially features the three properties outlined by Coleman (1990).

Figure 4 proposes an overall model connecting objective, media-based, and social realities differentiating into the macro and the micro level. Media-based reality is connected to objective reality and constitutes part of the context actors perceive beside objective reality. Objective and media-based media realities influence actors' beliefs. Rational choice and reasoned action theory explain the decision rule on which behavior is based on. Individual behavior aggregates to objective reality at time *t*2. That is, private purchases add up to industry sales as well as national private consumption and become part of the GDP. Corporate advertising expenditures add up to industry and national advertising expenditures. Media reality can also report on the beliefs and behavior of actors at *t*1 and *t*2. These connections are theoretically assumed for the analysis in this dissertation.

consequences." In case of double-contingency collective behavior, "the feedback loop contains the strategic actions of others. The actor acts; his action affects others, who act in such a way as to influence his future actions in a way that will be beneficial to them. Recognizing this, he in turn acts in such a way that their actions will be beneficial to him." These presumptions on the behavior of others can be applied to public and also to corporate economic behavior.

[13] Harrison and Weder (2006) argue that sunspots caused and can explain the entire depression era in the USA from 1929 to 1938.

Figure 4: Macro-micro-macro model of collective effects including the media reality



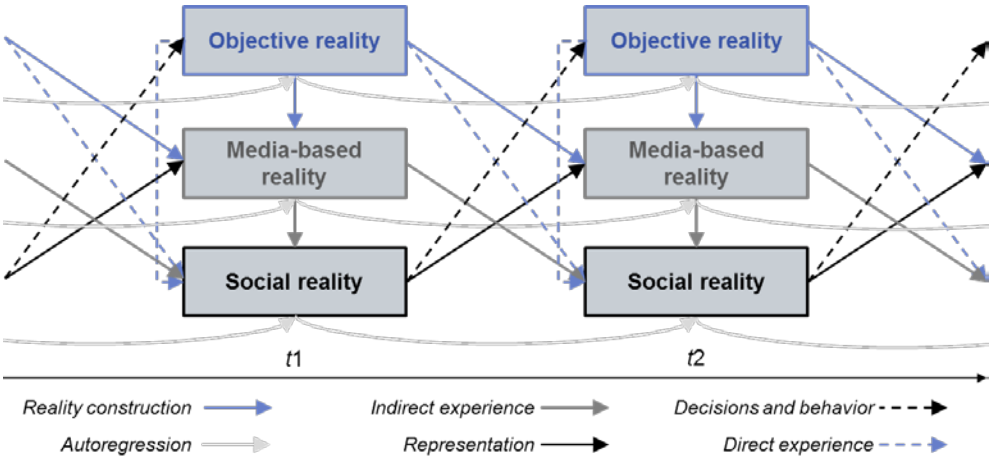
Source: Compiled by the author based on Greve, Schnabel and Schützeichel (2009, p. 8).

2.3 Temporal relations between objective, media, and social realities

Temporal relations between the different realities in Figure 1 can be assumed as shown in Figure 3 and Figure 4. Figure 5 considers the temporal course among objective, media-based, and social realities. First, all realities depend on their own past (autoregression).[14] Second, the triangular relations remain as indicated in Figure 1. But these relations may occur instantaneously at *t*1 or *t*2 as well as, over time, between *t*1 and *t*2, and so on. Hence, in the suggested model, the objective reality at *t*2 depends on its own past and the past of the social reality. The media reality at *t*2 depends on its own past, the past and the present objective reality, and the past of the social reality. The social reality depends on its own past, the past and present of the objective as well as the media reality. The speed of the media agenda diffusion, the quality of direct experiences with the objective reality, and the stickiness of the social reality influence the state of the social reality at time *t*. Consequently, (1), the social reality is the most complex construct within the model, and (2), the relations between objective, media and social realities should be analyzed over time. This dissertation will focus on the dynamic temporal relations between *t*1 and *t*2, applying VAR models. However, dynamics over time between macro and micro level, i.e., cross-level dynamics (Scheufele 2008, p. 356), remain uncovered.

[14] In an autoregressive process, the current value at time *t*1 is a linear result of its past values. This assumption can be made since the development of the objective, media, and social realities cannot be considered random white noise processes that do not depend on their own past at all. Lischka and Seufert (2014) note that most time series data are some kind of autoregressive process.

Figure 5: Temporal relations between objective, media, and social economic realities



Source: Compiled by the author based on Rössler (1997, p. 108).

3 Economic news and the real economy

This chapter answers the first research question, "How closely is economic news related to the real-world economy?" To approach the answer, first the micro level of journalists' ability to depict the real world is observed (3.1); second, the influence of their working environment on journalistic output is discussed (3.2); and third, the relation between economic news and economic indicators is estimated (3.3).

3.1 The ability of journalists to report on the real economy

This section explores as a first step whether economic journalists expect themselves to report in an unbiased way on objective economic reality. Journalists are aware of their inability to provide a reproduction of the real world (Weischenberg 1994, p. 427). Hagen (2005, pp. 78, 181) assumes that economic journalists might hastily draw conclusions or over-interpret economic trends. Especially but not exclusively in the course of the financial crisis, economic and financial journalism was criticized to be unable to identify or even forecast this major event or effectively report on the economy (Arlt and Storz 2010; Doyle 2006; Manning 2013; Marron et al. 2010; Mast 2012, pp. 66–68). Although German business journalists describe their most important merit with providing *neutral* and *precise* information for the audience (Mast 2012, p. 146), the complexity of economic relations, the lack of a watchdog role among economic journalists,[15] and insufficient skills are found to have collectively inhibited the forecasting of the financial crisis. A German financial journalist at the Financial Times Deutschland reports a change in his watchdog behavior on the matter of the financial crisis, "Even as an economic journalist I didn't try so hard to understand it because I thought there were other journalists at *Financial Times Deutschland* who were experts on this subject who understood this better. But after the Lehmans crash my approach changed totally. I wanted to understand more, I attended more conferences, spoke

[15] About 60 percent of German business journalists want to offer support for the life of their audience as shown in Spachmann (2005, p. 321).

to more people. I am definitely more conscious of the whole subject" (Picard, Selva and Bironzo 2014, p. 15, italic in original). Similar observations that the financial crisis shook up business journalists are reported in Arlt and Storz (2010).

The cross-national Worlds of Journalisms study collects evaluations from newspaper, magazine, TV, radio, and news agency journalists in 21 countries on unbiased reporting according to objective reality among other topics (Worlds of Journalisms Study). Especially the attitudes towards the items "I do not allow my own beliefs and convictions to influence my reporting," "I remain strictly impartial in my work," and "I think that journalists can depict reality as it is," measured on a 5-point scale from strongly agree (1) to strongly disagree (5) give an idea of journalists' stand on unbiased news coverage (Worlds of Journalisms Study 2007). Table 1 reveals results for journalists usually working on no specific beat or in a non-economy related beat (n = 282) versus journalists usually working on an economic, business, or financial beat (n = 18) from the USA, Germany and Switzerland. The economic journalists (n = 18) predominantly work for newspapers or online news outlets. The fieldwork was conducted between August and October in 2007 and therefore took place before the collapse of major financial institutes indicating the start of the financial crisis in 2008 but during the U.S. subprime mortgage crisis in 2007 which is regarded as catalyst for the financial crisis (Beck and Wienert 2009).

Results are reported in Table 1 for the three selected countries together, and broken down by journalists working on non-economic beats and those working on economic beats for all three countries and per country. Overall, journalists in all fields agree that their own beliefs do not influence their reporting, that their work is impartial. However, journalists in all three countries are on average undecided as to whether their work depicts reality as it is. Journalists working on an economic beat agree less strongly on all three items, with a significant ($p < .05$) difference for the influence of their own beliefs that is especially strong in Switzerland and the USA. German and Swiss economic journalists doubt that they depict reality as it is or are undecided about it, whereas their US colleagues tend to agree that they correctly depict reality. German economic journalists in this sample have strong doubts as to whether they produce economic news that reflects the real world correctly. Swiss economic journalists are less persuaded than their colleagues on other beats or with no specific beat that their own beliefs do not have an influence on their reporting. The results for economic journalists are based on a few cases only and have to be interpreted with caution. However, overall journalists are not convinced that they can depict reality as it is—and economic journalists in Germany doubt this most strongly.

Table 1: Evaluations of reporting standards of journalists working on non-economic and economic beats in Germany, Switzerland, and the United States

		Total	Non-economy	Economy	D		CH		USA	
		D+CH+USA	D+CH+USA	D+CH+USA	Non-economy	Economy	Non-economy	Economy	Non-economy	Economy
No influence on reporting	Mean	1.95	1.92$_a$	2.44$_b$	1.99$_a$	2.14$_a$	1.91$_a$	2.83$_b$	1.86$_a$	2.40$_a$
	(Stdev.)	(0.95)	(.91)	(1.38)	(0.90)	(1.07)	(0.83)	(1.60)	(0.99)	(1.67)
Remain strictly impartial	Mean	2.1	2.09$_a$	2.29$_a$	2.08$_a$	2.14$_a$	2.21$_a$	2.67$_a$	1.98$_a$	2.00$_a$
	(Stdev.)	(0.97)	(0.96)	(1.26)	(0.89)	(1.35)	(0.93)	(1.51)	(1.04)	(0.82)
Depict reality as it is	Mean	2.58	2.55$_a$	3.00$_a$	2.87$_a$	3.86$_b$	2.61$_a$	3.00$_a$	2.18$_a$	1.80$_a$
	(Stdev.)	(1.27)	(1.25)	(1.57)	(1.24)	(1.21)	(1.27)	(1.90)	(1.14)	(0.84)
Number of cases		300	282	18	93	7	94	6	95	5

Note: 5-point scale from strongly agree (1) to strongly disagree (5), subscript $_b$ indicates a significant difference to mean with subscript $_a$ within one group at $p < .05$ (two-sided t-test, Bonferroni corrected). Non-economy: journalists working on no specific beat or on a non-economy related beat, Economy: journalists working on an economic, business, or financial beat. Data source: The Worlds of Journalism Study; fieldwork August through October 2007.

Hence, the economic journalists surveyed do not expect to be able to copy economic reality in news reports. The reasons for which journalists doubt that there is no influence on reporting can also be found on the organizational level of the news outlet. The next section will discuss organizational influences on journalistic work to report on the economy.

3.2 Organizational influences on reporting

A series of influences at the macro level of the environment, at the meso level of the media organization, and at the micro level of the individual journalist are responsible for differences between news and reality and differences between the news reported by different news outlets. In this context, Spachmann (2005) reveals clearly differentiated news topic patterns and Mast (2012) affirms different editorial strategies across German economic print outlets. Depending on the degree of market orientation and strategic focus, content differentiates among news media (Beam 2003). Russi (2013) revealed that product differentiation through diverse media content also depends on available resources and concludes that competition and resources are crucial determinants of strategic product differentiation. Therefore, the existence of a programming mandate and related income sources may alter news content across private and public-service outlets.

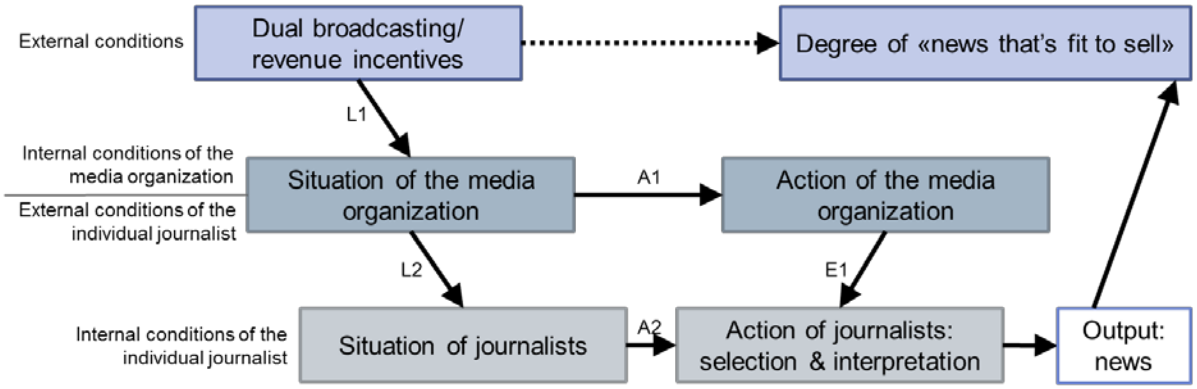
Shoemaker and Reese (1996) assume that the organization has more influence on news content than an individual journalist. In an article based on the Worlds of Journalism study, Hanitzsch et al. (2010) report the existence of a hierarchical structure from stronger meso- to less strong macro-level influences on journalists' work. In this study the immediate environment of the journalist—i.e., professional, procedural, and organizational—is revealed to be the most powerful influence on the day-to-day work of journalists, and reference groups, economic and politics are less powerful influences. For German

and Swiss journalists as well as those in other countries, Hanitzsch and Mellado (2011) confirm this hierarchy of influences.

Based on the model of sociological explanation as developed by Esser (1999), both Reinemann (2007) and Jäckel (2007) propose a structural-individualistic model incorporating the macro level situation, its impact on the situation and action of the media organization at a meso level, and in turn its impact on the situation and action of the journalist on a micro level in order to explain e.g. the degree of tabloidization in news. Based on this model which is illustrated in Figure 6, a collective news bias on aggregate level can be explained by actions of individual media companies and journalists. Or, vice versa: journalists' internal conditions, the micro level, are directly linked to journalistic action, i.e., news production. These internal conditions are influenced by the conditions of the media organization as they form the journalists' external conditions. This meso level of the organization is influenced by its external conditions on the environmental, macro level. According to Hanitzsch et al. (2010), the closer a level is to journalistic action, the more influence it exerts.

Lischka (2014) investigates the influence of revenue incentives indicated by the dual media system in Germany on news characteristics. Applied to the results of Lischka (2014), different revenue incentives between public-service and private news outlets alter the need to fit news to be sold to audiences in line with Hamilton (2004). Whereas private news outlets have to sell profitable audiences to advertisers, public-service outlets mainly have to follow their programming mandate. This macro-level context shapes the situation of the media company and its action (see Figure 6). This in turn shapes the situation of the journalists and their action resulting in output differences. Hence, Reinemann's (2007) model serves as a micro foundation for the argumentation that revenue incentives lead to differences in economic news.

Figure 6: Action-related model of the sociological explanation relating revenue incentives and journalists' selection and interpretation processes



Source: Compiled by the author based on Reinemann (2007, pp. 55, 62) and Jäckel (2007, p. 91).

Note: L1, 2: logic of the situation, macro-micro transition: linking rules that determine relevant aspects of the situation, evaluations, and expectations; A1, 2: logic of selection, micro-micro/meso-meso transition: application of an expectancy-value formulation to evaluate and select action alternatives; E1: logic of aggregation, micro-macro transition: aggregation rules to explain collective effects, downwards arrow in the original in Reinemann (2007, p. 62).

Hence, environmental and organizational circumstances affect journalists' work and therefore shape journalistic output. Considering organizational as well as environmental influences on journalists, it

seems to be impossible to produce unbiased economic news. The following section will investigate the relation between economic news and economic indicators.

3.3 The relation between economic news and economic indicators

This section describes the characteristics of economic news and agenda building referring to results of Lischka (2014), Lischka and Siegert (2013) and Lischka (accepted). The first article compares the economic news development in four major German news outlets from 2002 to 2010 including the period of the global financial crisis. The second article includes economic news of the major Swiss public-service news outlet from 2007 to 2011. The third article investigates whether aggregated economic news is derived from the real-world economy or from public expectations.

Scheufele (2003, p. 104) argues that reporting processes and therefore content change corresponding to the novelty of a situation. As a result of a crucial event, such as an unexpected economic crisis as the financial crisis following the subprime crisis in 2007, and a shortage of information, editorial work processes change from a *routine* to an *orientation* mode. During this orientation period, journalists realign the criteria of news production and new frames of reference can be developed. The orientation phase may lead to increasing news coverage differences across news outlets as described in the following paragraph.

During the exceptional crisis period, Lischka (2014) shows that the volume of economic news on German TV news increases greatly between 2002 and 2010, especially on public-service channels, whereas the volume of economic news decreases in a tabloid newspaper from 2007 onward. The Swiss public-service news show reports less often on the economy and does not increase its news volume until 2010 (Lischka and Siegert 2013, p. 177, Figure 1). Between 2002 and 2006, the news topic categories[16] of state-context-location, employment, and the general economy are the top-three topics for all four news outlets. From 2007 to 2010, the topic of the general economy becomes the number-two news topic. Also in Swiss public-service news, the topic of state-context-location is often the most important. However, Swiss economic news reports more often on other economic topics (Lischka and Siegert 2013, p. 178, Table 1), such as news on individual businesses or industries (Sommer et al. 2010).

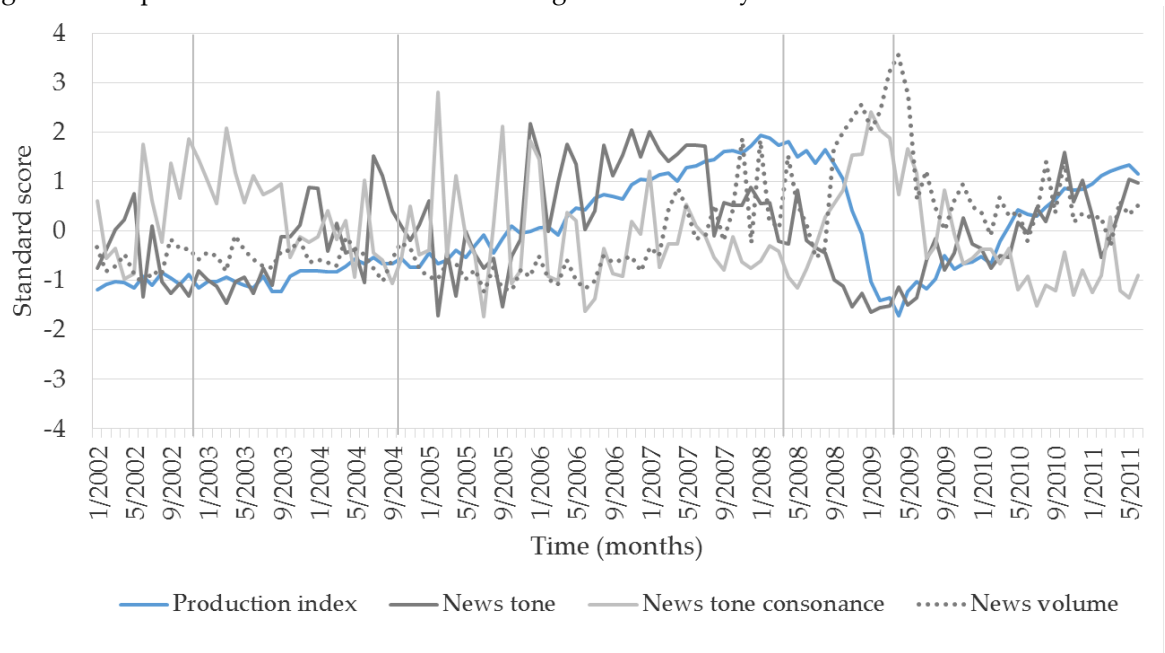
On average, news tone is negative to neutral between 2002 and 2005 for all news outlets and increases in 2006/7 to neutral. After 2007 the news tone of the TV news shows degenerates. However, the public-service news tone degenerates more strongly than the news tone of the private TV news show. The news tone of the tabloid newspaper does not decline compared to its average in 2006. Hence, the negative consequences of the financial crisis were reflected in TV news. Nevertheless, journalistic interpretation processes differ according to media category and revenue model. In Switzerland, public-service news tone does not degenerate until 2009 and reveals a more volatile picture than German public-service news (Lischka and Siegert 2013, p. 177, Figure 2).

Lischka (accepted) estimates as to whether changes in real-world economic figures forecast changes in news tone, consonance (inverted standard deviation of news tone), or volume for the general situation of the economy and employment. The basis for the analyses are the major German news outlets with

[16] Economic news topics comprise the categories (1) state-context-location (economic policy, national debt, laws, orders, bureaucracy, general ability to compete, employment protection, environmental specifications, protection against dismissal, business tax, income tax, value added tax, subsidies, tariff policy, infrastructure, foreign direct investments), (2) the general economy, (3) employment, (4) consumer and business sentiment, (5) productivity and labor costs, (6) prices and inflation, (7) currency, (8) external trade, (9) GNP and GDP, (10) order entries, (11) income, and (12) minor topics (bankruptcies, startups, investments, innovations).

the highest reach: the TV news shows ARD Tagesschau, ZDF heute, RTL aktuell, and the tabloid newspaper BILD. The selection of news outlets and the data measurement are based upon detecting collective media effects, which are explained in Lischka (accepted, pp. 9–12).
Figure 7 displays the z-standardized data[17] for news on the general economy and the production index. Throughout the observation period, news and the production index develop quite similarly by trend. However, news tone, consonance and volume develop in a more volatile way from one month to the next. During the recession period, news tone starts degenerating earlier than the production index. News volume and consonance increase during the 2008/9 recession. After the end of the recession, the trends develop similarly again. Interestingly, news consonance is high during downturns and lower during upturns. News volume becomes more volatile in the second half of 2007 and shows a strong increase of nearly up to four standard deviations towards the end of the 2008/9 recession period.

Figure 7: The production index and news on the general economy



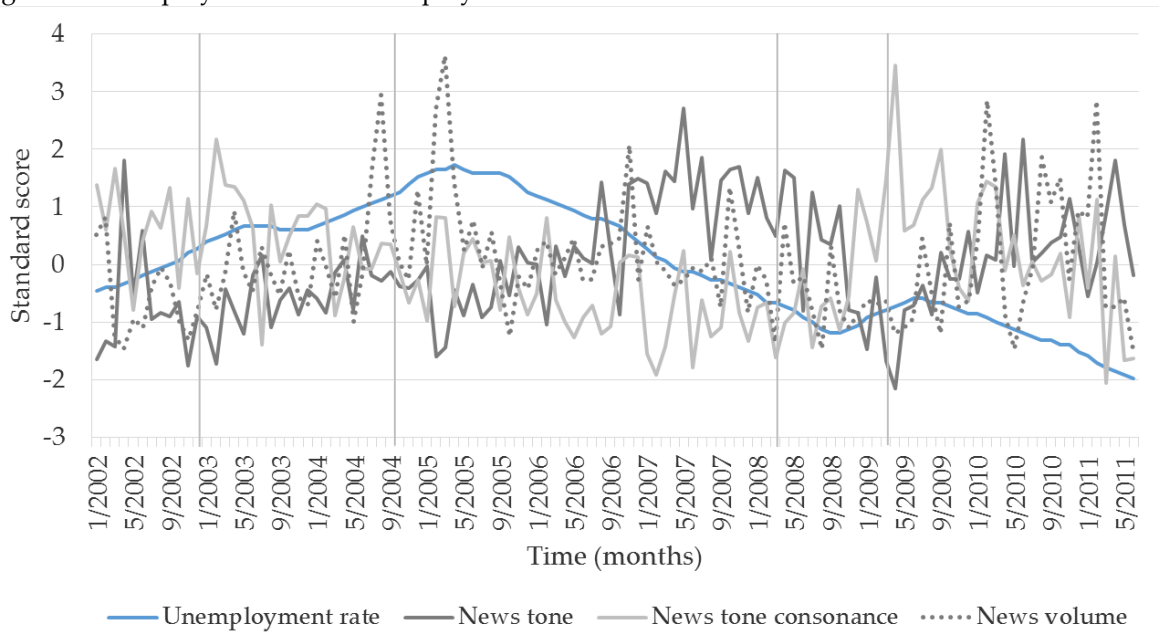
Notes. Observation period Jan 2002 – Jun 2011. All data are z-transformed. The recession periods (Q1 2003 to Q3 2004; Q2 2008 to Q1 2009) are marked. News tone, consonance and volume are monthly means and sums respectively of the total news on the general economy of four news outlets: ARD Tagesschau, ZDF heute, RTL aktuell, BILD (Lischka, accepted, pp. 9–12). The German production index is published by the German Federal Statistical Office and is adjusted for working day and season.

Figure 8 displays the z-standardized data for news on employment and the unemployment rate. News tone develops contrary to the unemployment rate revealing a more negative and more consonant news tone when unemployment increases. Again, news consonance increases when unemployment is higher and declines with lower unemployment, revealing higher consonance when news tone is negative. Also for this topic, news tone, consonance, and volume develop in a more volatile way than the unemployment rate. News volume shows two peaks in the middle of 2004 and 2005 when

[17] Observations are z-transformed by subtracting the mean and dividing by the standard deviation. Thus, all data are displayed on one scale that indicates the standard score, i.e., the number of standard deviations of which the data are above or below the mean, which is set to zero (0). The original means are reported in the Appendix, Table 5.

unemployment increases. In 2007 and 2008, unemployment numbers and employment news volume decrease. Between 2010 and 2011, news volume increases while unemployment continues to decline. The trends of news and economic indicators for the general economy and unemployment seem to develop at least to some degree in alignment. News tone and consonance on the general economy seems to be early, indicating the decline of the economic situation at the end of 2008.

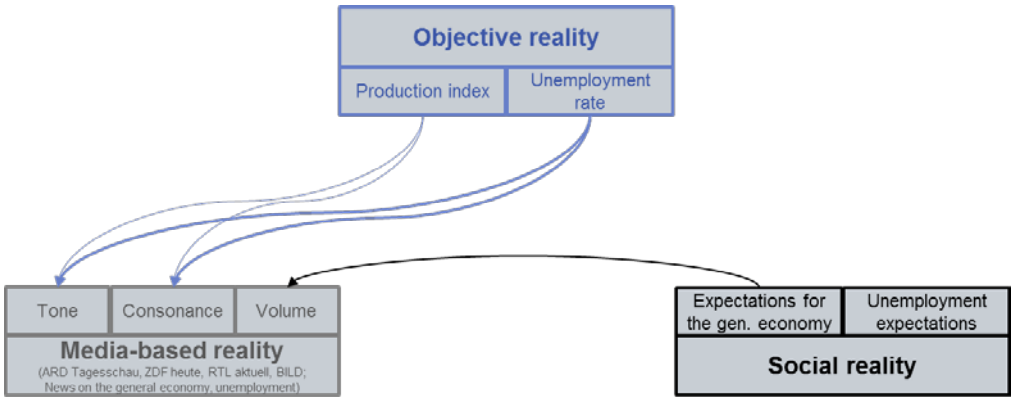
Figure 8: Unemployment rate and employment news



Notes. Observation period Jan 2002 – Jun 2011. All data are z-transformed. The recession periods (Q1 2003 to Q3 2004; Q2 2008 to Q1 2009) are marked. News tone, consonance, and volume are monthly means and sums respectively of the total news on employment of four news outlets: ARD Tagesschau, ZDF heute, RTL aktuell, BILD (Lischka, accepted, pp. 9–12). The German unemployment rate is published by the German Federal Statistical Office and is adjusted for season. All data are z-transformed for combined display in one figure.

The dynamic relations between real-world economic indicators and corresponding news are tested with VAR models in Lischka (accepted). Results (Lischka, accepted, p. 25, Table 1) as illustrated in Figure 9 reveal that it is primarily *news interpretation*, measured with economic news tone and consonance, that is set by changes in economic indicators confirming previous research (Behr and Iyengar 1985; Hagen 2005, pp. 154, 171; Wu et al. 2002). However, weaker relationships between the real-world economic indicator production index and news tone are found with news on the general economy, whereas the news tone of employment news depends greatly on changes in the unemployment rate. News tone on the general economy depends greatly on the news tone of the previous month. Once an interpretation on the general economy is established, this is stable for two months. News interpretation is more consistent when the economy deteriorates or unemployment increases and is less consistent when the economy and unemployment improve—which may be caused by asymmetric responses by journalists to negative events (Soroka 2006; Wu et al. 2002). News volume can partly be forecast by public economic expectations.

Figure 9: Main influences on media-based reality for the general economy and unemployment



Source: Compiled by the author based on results in Lischka (accepted, p. 25, Table 1)

Notes. Stronger influences are indicated with thicker arrows.

News selection measured with news volume cannot be forecast by economic indicators for both news topics. The volume of news on the general economy depends greatly on its own past. During the 2008/9 recession, the more pessimistic public expectations Granger cause an increase in news volume on the general economy. This relationship can be interpreted as news supply on the topic complying with the public demand. In contrast, employment news volume decreases as volume on news on the general economy increases, revealing a volume adjustment due to changes in the news agenda or to shortage of space and time.

Results for news on the general economy partly confirm the doubt, expressed by the German journalists surveyed in the Worlds of Journalisms study, that they had the ability to depict reality as it is (see Section 3.1). A reason that may explain a lack of a forecasting ability is that the general economic situation is more complex than one real-world economic indicator that was used for testing in the present study. News stories on a certain topic relate to more than one issue and do not always follow the aggregate real-world indicator. This becomes apparent in the stronger volatility of news tone and consonance in Figure 7 and Figure 8. In addition, the topic of the general economy is less elusive than the topic of unemployment. To report on the general economy includes many further occasions and aspects that appear to be relevant for a journalist and therefore may be interpreted differently from what aggregate numbers would suggest. Incoming economic news varies and requires specific selection and interpretation every day. Possibly, news relates to real-world economic events on a micro, meso, or macro level and therefore may deviate from the general, aggregate trend on a macro level. At the same time, these economic events "pay" into real-world economic indicators measured on a macro level—i.e., when a company gains strong returns or provides new jobs, these incidents may become part of the news. And they are also part of the production and unemployment numbers. This relationship may be closer for occasions to report on unemployment.

3.4 Summary and interim conclusion

Tracing the relation between objective and media economic reality as illustrated in Figure 1 (path A), the following conclusion can be drawn from the review of this study's results against the theoretical background and previous research.

A. Economic news is predictably not a copy of the real-world *aggregate* economy but is in alignment with it. Economic news presents a more diverse and therefore volatile picture of the economy than aggregate economic indicators suggest. As a matter of course, news on a particular economic topic also refers to real-world events on a micro or meso level which may deviate from the major aggregate economic trend on a macro level. That is, journalists and editors select real-world events for news coverage based on news factors and ascribed values, i.e., characteristics that are *event-internal*, but not based on the fit with the general aggregate economic situation. Therefore, economic indicators cannot fully predict short-term developments of news volume, tone, and consonance.
   In addition, the selection processes are determined by the specific situation of each journalist within each media organization which change after an orientation phase caused by the start of the financial crisis. This supports Scheufele's (2003) assumption that a crucial event can change journalistic frames of reference and news outlets start to differ in their *levels* of economic news tone, consonance, and volume more strongly after the start of the financial crisis. Yet, the news tone, consonance and volume *trends* between news outlets is mostly similar.

4 Economic news and economic sentiment

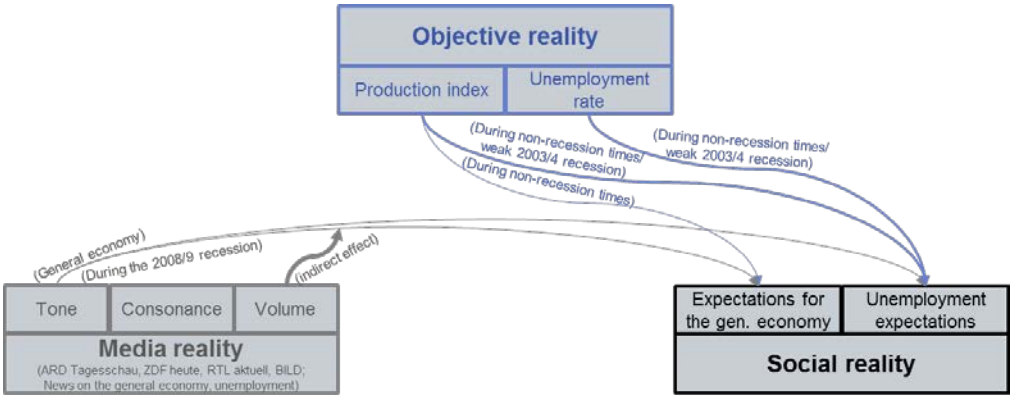
How economic news coverage influences public expectations is reviewed in this chapter. It is dedicated to answering the question "How does economic news influence the public and expert economic sentiment?" which is related to path B in Figure 1. The role of economic news in economic expectations is explained in more detail in Lischka (accepted, pp. 5–7) concerning the public and Lischka and Siegert (2013, pp. 175–176) concerning economic experts. Theory and literature are briefly summarized and the results of these studies are evaluated in Sections 4.1 and 4.2. In Section 4.3, the impact of economic news on expectations of the public and economic experts is compared applying an additional VAR analysis.

4.1 The role of economic news in the economic sentiment of the public

An individual's opinion on a certain topic is a result of direct experiences, the experiences of reference groups, interpersonal communication, one's own as well as other people's opinions, and media consumption (see e.g., Ball-Rokeach and DeFleur 1976; Gerbner 1969; McCombs and Shaw 1972; Schenk 1997; Scherer 1990). An increased budget at work, the bustle in the shopping mall or the amount of construction work in a city can all be perceived by non-specialists as indicators of a good economic situation. As early as the mid-twentieth century, Katona (1975; 1957) emphasized the information-distributing effects of the media on economic attitudes. That economic news affects what and how individuals think about the economy has often been empirically proved. Media are not only an important source of economic knowledge for individuals, but they influence economic attitudes as well—as communication and economics research has shown (Bachl 2009; Blood and Phillips 1995; Brettschneider 2003; Doms and Morin 2004; Dräger 2011; Easaw and Ghoshray 2010; Goidel and Langley 1995; Goidel et al. 2010; Hagen 2005; Hester and Gibson 2003; Ju 2008; Lamla and Lein 2008;

Tims, Fan and Freeman 1989). These studies are often based on first- and second-level agenda setting and media dependency as well as cultivation theory.
Differences in effects are due to the overall economic situation, tone, salience or obtrusiveness of the issue, the level of trust accorded the news outlet, etc. (for an overview see Lischka, accepted). Non-obtrusive issues, which are not related to personal experience (Demers et al. 1989; Zucker 1978), are found to have stronger agenda-setting or cultivating effects than obtrusive issues (Hetsroni and Lowenstein 2012). This is in line with the obtrusive contingency hypothesis stating that when people have experience with an issue rather develop expectations based on their own experiences than use media coverage to develop expectations (Demers et al. 1989; Lee 2004; see Lischka, accepted, pp. 5–6 for further discussion). However, when individuals experience unemployment themselves or vicariously through family and friends, this obtrusive issue may only be regarded as an important public issue if it appears in the news. Only then can the extent of a problem be recognized, and expectations for unemployment in a country be developed. Stronger news effects on sociotropic perceptions—i.e., unemployment or the economy as *social* problem, compared with egocentric perceptions, i.e., unemployment or the economy as *personal* problem—was described by Mutz (1992) and has been since then confirmed (Hagen 2004).
Results in Lischka (accepted) reveal news effects on public expectations towards the general economy as well as towards unemployment as national, i.e., sociotropic, problems. However, public economic expectations are more strongly influenced by real-world economic indicators than by news coverage. Figure 10 summarizes the main influences on public expectations found in the analyses in Lischka (accepted, pp. 26–27, Table 2).

Figure 10: Main influences on public expectations for the general economy and unemployment



Source: Compiled by the author based on results in Lischka (accepted, pp. 26-27, Table 2)

Notes. Stronger influences are indicated with thicker arrows.

News tone on the general economy has some forecasting ability for public expectations, both for the general economy and for unemployment expectations, during the 2008/9 recession, which is in line with previous findings (Hester and Gibson 2003; Wu et al. 2002). The news tone effect on public expectations for the general economy increases with higher news volume. This relates to results by Golan and Wanta (2001) who show that news volume is a stronger predictor of public opinion than news tone. Surprisingly, higher news consonance does not lead to stronger news tone effects on the public, although it is found to be is necessary for collective media effects (see B. in Chapter 2). But the

results suggest a negative tendency in public expectations for the general economy, i.e., lower news consonance leads to stronger news tone effects (Lischka, accepted, pp. 26–27, Table 2). The lack of an indirect influence may be due to the high volatility of news consonance over time. Also, news volume may be a clearer signal to the public, which may stimulate follow-up communication. On the other hand, lower news consonance may also increase the need for follow-up conversations that result in stronger alignment between the average news tone and public expectations during the 2008/9 recession. During non-recession times, the production index tends to forecast public expectations for the general economy. During non-recession times and the weaker 2003/4 recession, both economic indicators can forecast unemployment expectations.

To sum up, the second-level agenda-setting effect of news tone may be moderated by an increased need for orientation (Matthes 2008) and news dependency (Ball-Rokeach and DeFleur 1976) as well as higher news salience during the recession. Hence, second-level agenda-setting effects depend on news quality *and* quantity. In addition, the public draws conclusions from the news on the general economy for both the general economy and on unemployment development expectations. This heuristic is in line with the economic cycle between the general state of the economy and the employment situation: employment numbers are a lagging indicator of the economy, i.e., result from changes in the general economy (Kater 2008). Thus, to describe second-level agenda setting on a given topic, the inclusion of news that may not appear to be directly related to the given topic is required.

4.2 The role of economic news in the economic sentiment of economic experts

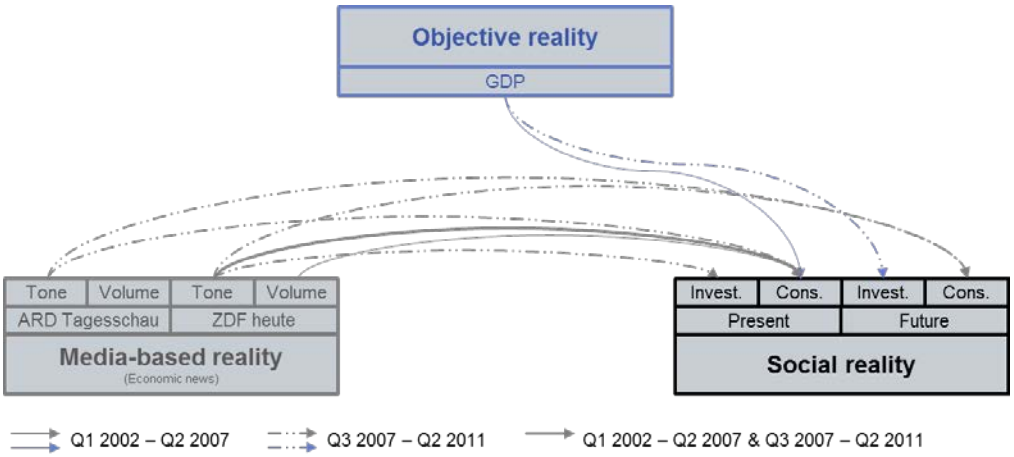
In this study, the agenda-setting effects discussed above are found for the public's expectations for the economy. When it comes to economic experts, agenda-setting effects may decline with decreasing media dependency, as revealed in Lischka and Siegert (2013, p. 2). This section discusses the influence of news on expert's economic expectations based on the results of Lischka and Siegert (2013) and reflecting on third-person effects.

Economic experts depend less than does the public on news concerning the general state of the economy due to their professional experience with the economy. One can assume that they are highly involved with economic aspects such as the development of the economy, corporate investments, and private consumption. Therefore, they are less dependent on the media. On the other hand, experts may assume that consumers' and entrepreneurs' economic sentiment and behavior are affected by news. To assess economic decision making in the total population, economic experts may use general news to get an idea about public opinion. To assess future private consumption, news may be a good source for understanding or coming to conclusions on consumer sentiment (see discussion in Lischka and Siegert 2013, p. 3). Experts might expect that news affects or reflects the public opinion according to the effect of presumed influence (Gunther and Storey 2003). An assumed news effect on other people increases with social distance "as the 'others' become more socially remote from the perceiver" (Tewksbury 2002, p. 247)—which may apply to the experts' perception of the general public.

Hence, for the audience group consisting of economic experts, the media dependency model (Ball-Rokeach and DeFleur 1976) in combination with the effect of presumed influence (Gunther and Storey 2003) as a third-person effect (Davison 1983) can explain news effects. The theory of the effect of presumed influence proposes that people presume that others will act based on the perceived influence of the media. The media dependency approach suggests that news effects are more likely to occur when no direct experiences can be accessed. Third-person effects are found to be stronger with large, socially

distant groups (Tewksbury 2002). Experts may be more able to assess entrepreneurial behavior than consumer behavior as the latter comprises a large, socially distant group.
Results of Lischka and Siegert (2013) reveal that the German experts' assessment of *present and future* private consumption expenditures relies on news tone of the past quarter of two Public-service evening TV news shows from Q3 2007 onward.[18] Before Q3 2007, news tone Granger causes the evaluation of the *present* state of the economy with lower forecasting ability and the *present* state of private consumption with higher forecasting ability, with a delay of one quarter (three months). Because the real-world state of the economy also depends on the development of real-world private consumption whose evaluation in turn depends on news tone for the experts, news tone also tends to Granger cause the evaluation of the general state of the economy. In contrast, the evaluation of present and future corporate investments is not in a Granger-causal relationship with news before Q3 2007. Only from Q3 2007 onward does the ZDF heute news tone tend to Granger cause the assessment of present investments. For these aspects of the economy, experts rely more on their own experiences than on news tone. The main results for experts' evaluations and expectations for investments and consumption expenditures are illustrated in Figure 11.

Figure 11: Main influences on experts' assessment of investments and consumption



Source: Compiled by the author based on results in Lischka and Siegert (2013, p. 180, Tabelle 2).

To conclude, the experts' dependency on news is higher in times of economic instability and when the news concerns the hard-to-predict behavior of the general public. Hence, results of Lischka and Siegert (2013) can be explained with the concepts of the third-person effect and media dependency.

4.3 Comparison of the news effects on economic expectations of the public and economic experts

When one compares the second-level agenda-setting effects of the news on the general public (Lischka, accepted) with their effects on economic experts (Lischka and Siegert 2013), surprisingly, news effects

[18] The study estimates the effect of Swiss and German news tone and volume on Swiss and German economic experts surveyed by the Ifo World Economic Survey (WES). These are experts in economic institutions, universities, central banks, and multinational companies in each surveyed country, as described in ifo (2013). No effects are found for Swiss news on Swiss experts, which may be due to differences in German and Swiss economic news volume, tone, and topics.

appear to be stronger with economic experts than with the general public as explained variance (adjusted R^2) suggests. Whereas news tone can account for the variance of experts' evaluation of future private consumption, explaining up to 70% of that variance after 2007 (Lischka and Siegert 2013, p. 180, Tabelle 2), more than 30% of variance is not explained in the models treating public expectations (Lischka accepted, pp. 26-27, Table 2). First, different observation periods may have caused the differences in results. Second, economic news on the general economy and on unemployment were estimated separately over the four major news outlets in Lischka (accepted) whereas Lischka and Siegert (2013) took account of the entirety of economic news in two public-service news outlets. The following analysis will adjust these differences. A third technical explanation for this difference may be the data frequency. Agenda-setting effects on the general public were estimated using a data frequency of one month, and for experts using a quarterly frequency. A greater aggregation of data can cause greater effect sizes (Maurer 2004 on media effects; Lischka and Seufert 2014, pp. 10–11, Section 3.2 on the advertising sales relation). However, in order not to lose agenda-setting effect occurring within one month and to show a more accurate picture, the data frequency will not be aggregated to quarters.

Hence, for a direct comparison, the VAR models used in Lischka (accepted) are adapted to the VAR models used in Lischka and Siegert (2013, p. 179) in terms of scope (total economic news volume (*Vol*) and tone (*Tone*) of the two German public-service news outlets separately, omitting news consonance). The VAR models[19] for the public and experts' evaluations and expectations (E) including GDP (*GDP*) can be written as follows.

(2a) $\Delta E_t = \alpha_1 + \beta_1 \Delta E_{t-1} + \lambda_1 \Delta Tone_{t-1} + \varsigma_1 \Delta Vol_{t-2} + \gamma_1 \Delta GDP_{t-1} + \varepsilon_{1t}$

with α being the constant, β, λ, ς, γ being the coefficients and ε_t being the residuals. The resulting explained variance of E (adjusted R^2) of (1a) is compared with the explained variance of the following VAR model (2a) that omits news tone and volume.

(3a) $\Delta E_t = \alpha_1 + \beta_1 \Delta E_{t-1} + \gamma_1 \Delta GDP_{t-1} + \varepsilon_{1t}$

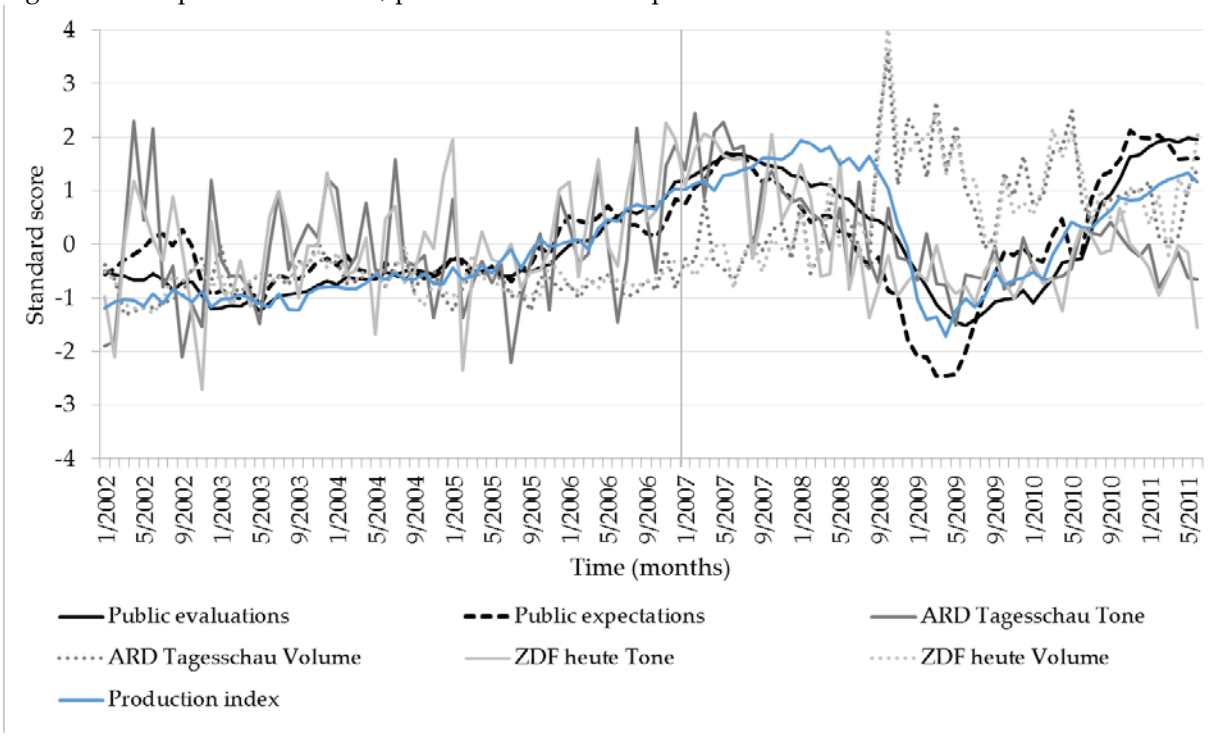
The questions of the experts' and public's estimation of the future development of the general economy are quite similar and can be compared. Additionally, the public's judgment on the general economy during the last 12 months and the experts' evaluation of the present state of the economy are used to compare news effects on retrospective and present evaluations versus expectations. The evaluation and expectation questions for the general public were, respectively: "How do you think the general economic situation in the country has changed over the past 12 months?" and "How do you expect the general economic situation in this country to develop over the next 12 months?" (European Commission and Directorate-General for Economic and Financial Affairs, 2007, p. 47; Lischka, accepted, p. 13). The evaluation and expectation questions for experts were, respectively: [Give us your opinion on] "this country's general situation regarding overall economy, present judgment" and [Tell us what you expect] "from now on: expected situation by the end of the next 6 months" (Lischka and Siegert 2013, p. 182, Appendix 1). Besides the time horizon in the question, the data collection methods differ for the two surveys: face-to-face interviews for the public, paper and pencil questionnaires for the experts; and the survey frequencies as well: monthly and quarterly respectively.

The data in monthly frequency used in the VAR model for the public are converted to standard deviations and displayed, combined, in Figure 12. The standard deviations in the public evaluations

[19] Since only to explain evaluations and expectations (E) is of interest, the remaining equations of the VAR model are omitted.

and expectations develop similarly and in line with the real production index until they reach a peak in the middle of 2007. From the middle of 2007 onward, public expectations are more pessimistic than evaluations or the production index until mid-2009, when expectations are slightly more positive than evaluations. Standard deviations in news tone of the ARD Tagesschau and ZDF heute are comparably volatile but develop in line with public evaluations except for 2011. News volume shows a strong increase—up to four standard deviations—when the production index starts to decline from the end of 2008 until the end of 2010, after which the production index once again reveals positive standard deviations.

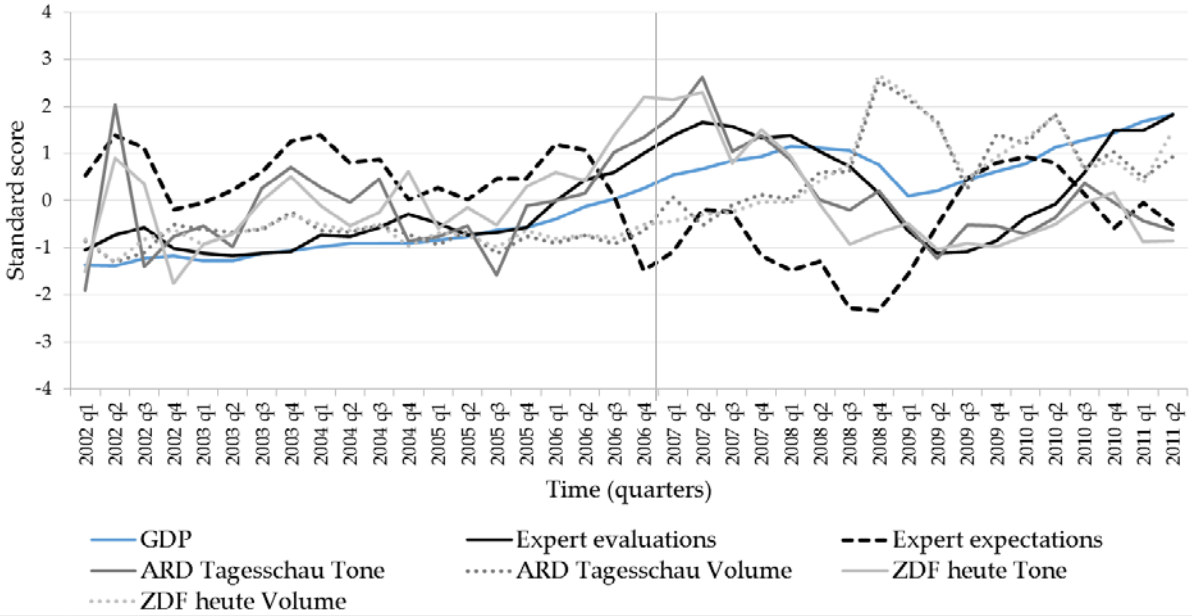
Figure 12: The production index, public sentiment and public-service economic news



Notes. Observation period Jan 2002–Jun 2011. All data are z-transformed. The break date is marked (Jan 2007). Public evaluations: "How do you think the general economic situation in the country has changed over the past 12 months?" Public expectations: "How do you expect the general economic situation in this country to develop over the next 12 months?" (European Commission and Directorate-General for Economic and Financial Affairs, 2007, p. 47; Lischka, accepted, p. 13). News tone and volume are monthly means and sums respectively of the *total* economic news per outlet. The production index is published by the German Federal Statistical Office and is adjusted for working day and season. All data are z-transformed for combined display in one figure.

The data in quarterly frequency used in the VAR model for the experts are converted to standard deviations and displayed combined in Figure 13. The expert evaluations develop similarly to the news tone of both outlets except for 2011. Therefore, expert and public evaluations seem to be similar. But the expert expectations become negative in 2006 what is one year earlier than the expectations of the general public. While the GDP develops positively until 2008, experts have started expecting a negative development two years in advance. This sentiment seems not to be in line with any other data series in Figure 13. But the expert expectations for the general economy develop in an anti-cyclical manner compared with their evaluations and the GDP.

Figure 13: The GDP, expert sentiment and public-service economic news



Notes. Observation period Q1 2002 – Q2 2011. All data are z-transformed. The break date is marked (Q1 2007). Expert evaluation and expectation, respectively: "This country's general situation regarding overall economy present judgment" and "from now on: expected situation by the end of the next 6 months" (Lischka and Siegert 2013, p. 182, Appendix 1). News tone and volume are quarterly means and sums respectively of the *total* economic news per outlet. The German GDP is published by Eurostat and is adjusted for working day and season.

VAR results as displayed in Table 2 reveal that the public's expectations for and evaluation of the general economy is influenced by economic news. Before 2007, public evaluations can be better forecast from ZDF news tone than from expectations. From 2007 onward, the public expectations tend to rely more strongly on news than on evaluations, since up to four lags of ZDF heute tone and volume affect public expectations. ZDF heute news tone Granger causes evaluations and expectations only by trend from 2007 onward but significantly before 2007. On the other hand, economic experts predominantly rely on news only for their evaluation of the *present* economic situation, which also tends to be stronger from 2007 onward. Comparing expectations of the public versus those of economic experts, the former are more strongly influenced by economic news. An increase in economic news volume in the ARD Tagesschau has some forecasting ability for an increase in positive expectations of the experts before 2007. News tone does not Granger cause expert expectations. However, news tone of ZDF heute Granger causes public expectations for both observation periods.[20] During economically insecure times, from 2007 onward, expert expectations do not rely on news but public ones do. Still, the news tone of ZDF heute Granger causes the experts' evaluation of the *present* state of the economy.
Hence, news stimuli may be used for updating specific economic sentiments by both groups as media dependency varies across the two groups and over time. Whereas the public depends more strongly

[20] When estimating this relationship on a quarterly frequency, the impact of ZDF heute news tone on public expectations from 2007 onward lasting four months should also be evident.

on economic news for understanding the future, especially in insecure times, experts are not guided by general economic news to develop their expectations.

Table 2: Influence of public-service economic news on public and expert sentiment for the general economy

	Public		Economic experts[1]	
	Evaluation (*E*) (last 12 months)	Expectation (*E*) (next 12 months)	Evaluation (*E*) (present)	Expectation (*E*) (next 6 months)
	Jan 2002 – Jun 2007		Q1 2002 – Q2 2007	
ARD Tagesschau				
Granger causality (*F*)				
Tone → *E*	n.s.	n.s.	8.06*	n.s.
Vol → *E*	n.s.	n.s.	n.s.	3.62°
adjusted R^2 (2a)	-0.01	-0.06	0.40	0.10
Share adj. R^2 *Tone* and *Vol*	-0.05	-0.04	0.29	0.14
Influences	n.s.	n.s.	$Tone_{t-1}$+*	Vol_{t-1}+°
ZDF heute				
Granger causality (*F*)				
Tone → *E*	4.20*	2.81*	3.37°	n.s.
Vol → *E*	n.s.	n.s.	n.s.	n.s.
adjusted R^2 (2a)	0.19	0.09	0.19	0.32
Share adj. R^2 *Ton* and *Vol*	0.15	0.10	0.08	-0.08
Influences	$Tone_{t-1}$+**, $_{t-2}$+*	$Tone_{t-1}$+**, Vol_{t-1}+°	$Tone_{t-1}$+°	n.s.
	Jul 2007 – Jun 2011		Q3 2007 – Q2 2011	
ARD Tagesschau				
Granger causality (*F*)				
Tone → *E*	n.s.	n.s.	n.s.	n.s.
Vol → *E*	2.40°	n.s.	n.s.	n.s.
adjusted R^2 (2a)	0.55	0.31	0.52	0.22
Share adj. R^2 *Tone* and *Vol*	0.11	0.17	0.01	-0.08
Influences	Vol_{t-1}–*, $Prod_{t-3}$+*	$Tone_{t-1}$+*, $Prod_{t-3}$+°	n.s.	GDP_{t-1}–°
ZDF heute				
Granger causality (*F*)				
Ton → *E*	2.26°	2.55°	3.55°	n.s.
Vol → *E*	n.s.	n.s.	4.84°	n.s.
adjusted R^2 (2a)	0.57	0.56	0.67	0.31
Share adj. R^2 *Tone* and *Vol*	0.13	0.22	0.16	0.00
Influences	$Tone_{t-1}$+**, $_{t-4}$–°, $Prod_{t-3}$+*	$Tone_{t-1}$+**, $_{t-2}$+°, $_{t-3}$+°, $_{t-4}$+°, Vol_{t-1}–°, $_{t-2}$–*, $_{t-3}$–*, $Prod_{t-3}$+*	$Tone_{t-1}$+°, Vol_{t-1}–*, GDP_{t-1}+*	GDP_{t-1}–°

Notes. For Granger causality, the null hypotheses that the coefficients on all the lags of an endogenous variable are jointly zero is tested. The share of adj. R^2 *Tone* and *Vol* = adj. R^2 of (2a) minus adj. R^2 of (3a). Line "influences" contains the lags and signs of significant VAR coefficients. Data frequency public: monthly, experts: quarterly, i.e., *t*-1 is equivalent to one month/one quarter for public/expert column. 1) As published in Lischka and Siegert (2013), Tabelle 2, column 4. The VAR models are controlled by

the production index (Prod, monthly measurement of the GDP, public) or the GDP (experts); n.s.: not significant, °: significant on 10% level, *: significant on 5% level, **: significant on 1% level.
News tone and volume are monthly/quarterly means and sums respectively of the *total* economic news per outlet. Public evaluations: "How do you think the general economic situation in the country has changed over the past 12 months?," public expectations: "How do you expect the general economic situation in this country to develop over the next 12 months?" (European Commission and Directorate-General for Economic and Financial Affairs, 2007, p. 47; Lischka, accepted, p. 13). Expert evaluation and expectation respectively: "This country's general situation regarding overall economy present judgment" and "from now on: expected situation by the end of the next 6 months" (Lischka and Siegert 2013, p. 182, Appendix 1).

4.4 Summary and interim conclusion

Tracing the relation between the media-generated and social economic realities as illustrated in Figure 1 (path B), the following interim conclusion can be drawn from the discussion of these study's results against the theoretical background and previous research.

B. Both the public and economic experts are more likely to use information gathered from their daily lives to develop economic sentiment than information gathered from the general news. Yet economic news coverage has some effects on collective economic sentiment. These effects are stronger in economically insecure times. The overall economic situation is an important condition for news effects as media dependency varies with it. Therefore, the news indicates whether an economic situation should be perceived as a social *problem* as suggested by Mutz (1992).
   While the ability of news to forecast the public opinion can be considered a causal effect in line with the theory of the persuasive press inference (Gunther 1998), the ability of news tone to forecast the expert opinion is based on the influence of presumed influence (Gunther and Storey 2003). While the public sometimes takes economic news as a depiction of the real world, especially in uncertain economic times, economic experts sometimes consider public opinion *and* behavior as influenced by economic news as economic news tone can forecast the expert expectations for private consumption. Therefore, economic experts sometimes expect that the public will behave according to implicit cues in economic news.

5 Economic news, economic sentiment and economic behavior

This chapter answers the question of how economic news and economic sentiment influence private and corporate economic behavior (RQ 3) and relates to path C in Figure 1. Section 5.1 focuses on public economic behavior using the example of purchase intention. Section 5.2 addresses corporate economic behavior using the example of advertising expenditures.

5.1 Private economic behavior: Purchase intention

This part revises the literature on the relation between public economic sentiment and consumption behavior in Section 5.1.1 and extends the discussion including the role of economic news for behavior in Section 5.1.2. An additional empirical analysis on the temporal relationship between purchase intention, economic expectations and economic news is presented in Sections 5.1.3 and 5.1.4.

5.1.1 The influence of public economic sentiment on economic behavior

Katona (1957, p. 119) can be considered a pioneer introducing the human factor to economics by emphasizing the ability of economic attitudes to predict economic behavior. In Katona's view, consumer sentiment cannot be explained only by real-world economic and financial variables—because "[n]ot every income increase brings forth a feeling of satisfaction or of advance in financial well-being" (Katona 1957, p. 121)—but is a complex result, an "intermediary variable between the numerous pieces of information consumers digest, the stimuli, and the expenditure decision" (Vuchelen 2004, p. 495). The purchase of goods is affected by (1) experiences and expectations for people's own financial situation, (2) direct and indirect experiences for the general economic outlook, and (3) people's ability to buy (e.g. changes in income, liquid assets, debts, access to credits, possessions) (Katona 1957, p. 124; 1974, p. 22). Hence, consumer sentiment contains information beyond real-world economic indicators. News may affect intangible psychological factors such as optimism, pessimism, or uncertainty that are part of the willingness to spend (Katona 1975). This idea is in line with communication scholars reasoning that the public opinion is a result of direct experiences, experiences of reference groups, interpersonal communication, one's own opinion, and media consumption (see e.g., Ball-Rokeach and DeFleur 1976; Gerbner 1969; McCombs and Shaw 1972; Schenk 1997; Scherer 1990).

Empirical testing has often proven the forecasting ability of consumer sentiment for aggregate consumption (see overview in Eppright, Arguea and Huth 1998; Vuchelen 2004). Chua and Tsiaplias (2009) show that consumer sentiment data provide information not available through historical consumption. However, the forecasting ability of consumer sentiment often declines but remains statistically significant when controlling with macroeconomic data (Carroll, Fuhrer and Wilcox 1994; Fuhrer 1993; Ludvigson 2004; Mishkin 1978) or leading economic indicators such as interest rates (Ivanova and Lahiri 2001). Consumer sentiment is found to be cointegrated with real consumption and Granger cause consumption with a time lag of four to five months (Gelper, Lemmens and Croux 2007) or up to three quarters (Praet and Vuchelen 1984). Especially in times of higher uncertainty and stronger volatility in consumer sentiment, the consumer sentiment forecasting ability is strong (Desroches and Gosselin 2004; Ivanova and Lahiri 2001). Based on the consumer survey of the European Commission, Praet and Vuchelen (1984) certify changes in the German consumer sentiment an explained variance of about 75% for changes in real consumption. Cotsomitis and Kwan (2006) assess that economic expectations have forecasting ability for German consumption whereas the total consumer confidence index of the European Commission does not. Beyond that, forecasting ability varies strongly among European countries.

The forecasting ability of consumer sentiment components varies across goods (Ludvigson 2004; Wilcox 2007). According to Katona (1957), the purchase of durable goods is more closely related to the evaluation of people's current and prospective financial situation than to income increases. In empirical studies, consumption of goods is often classified into services, non-durable, and durable goods according to the Fair (2004) Macroeconometric model of the US economy. Many studies confirm a the ability of consumer sentiment to forecast the consumption of durable goods or, more specifically, of cars, trucks and motorbikes (Adrangi and Macri 2011; Easaw, Garratt and Heravi 2005; Easaw and Heravi 2004; Ivanova and Lahiri 2001; Ludvigson 2004; Mishkin 1978). However, conflicting results are found as well. For goods excluding automotive and services, the University of Michigan's Index of

Consumer Sentiment (ICS)[21] improves forecasting of consumption (Carroll, Fuhrer and Wilcox 1994). The ICS has more predictive power for the consumption of services than for that of durables or non-durables (Gelper, Lemmens and Croux 2007). In addition, the ICS is found to forecast only non-durable consumption (Wilcox 2007).

Using a consumer confidence index or its individual components leads to differences in results. The best forecasting ability is offered by the evaluation of family finances and buying conditions (good or bad time to buy major household items) for consumption as opposed to the evaluation of the economic conditions and a sentiment index. The financial situation turned out to improve forecasting of the consumption of non-durable and economic expectations the automobile consumption (Wilcox 2007). In a four-quarter-ahead model, the ICS and all components can forecast consumption of durables and automobiles. The evaluation of the right time to purchase, the personal financial situation expectations and national economic expectations have the greatest forecasting ability. Economic *expectations* prove to be more powerful consumer sentiment components than the evaluation of *current* economic conditions. Yet in a one-quarter-ahead model, private consumption of durables or automobiles cannot be forecast by the ICS or any of its components (Wilcox 2007).

Although previous results vary according to observation periods, countries, indices, and estimated models, previous research shows that a breakdown of a consumer sentiment index into its components and a breakdown of aggregate consumption into goods can provide useful insights. In addition, consumption may be able to forecast purchase intention. After a purchase, the intention to purchase the same good declines. Hence, current possessions affect purchase intention (Katona 1957) and need to be checked when estimating the attitude-behavior relation.

This means that a close relationship between economic sentiment and the public's behavior can be assumed. Therefore, an additional analysis on the relation between economic news, economic expectations, and purchase intention is conducted in the following sections. Beforehand, the role of news on economic behavior is discussed with previous and own research.

5.1.2 The influence of economic news and economic sentiment on economic behavior

Grossarth-Maticek and Mayr (2008) find that the counts of the word "recession" in German newspapers have a forecasting ability for the German GDP. This is in line with the idea that belief shocks (Salyer and Sheffrin 1998) or agents' self-fulfilling expectations (Farmer 1999; Harrison and Weder 2006) move the economy. In this regard, false announcements of the macroeconomic development can have an effect on economic growth (Oh and Waldman 1990). Likewise, Uhl (2012) finds that TV news tone and consumer sentiment can forecast private consumption with TV news being the slightly stronger variable. A model containing TV news tone, personal income and savings was the best combination to forecast private consumption in the USA. Starr (2012) estimates a structural VAR model (SVAR)

[21] The ICS includes questions that are very similar to the consumer survey of the European Commission and Directorate-General for Economic and Financial Affairs (2007). The components of the ICS as reported in Starr (2012, p. 1110) are as follows. Q1: "We are interested in how people are getting along financially these days. Would you say that you (and your family living there) are better off or worse off financially than you were a year ago?" Q2: "Now looking ahead—do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?" Q3: "Now turning to business conditions in the country as a whole—do you think that during the next 12 months we will have good times financially, or bad times, or what?" Q4: "Looking ahead, which would you say is more likely—that in the country as a whole we will have continuous good times during the next 5 years or so, or that we will have periods of widespread unemployment or depression, or what?" Q5: "About the big things people buy for their homes—such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good or bad time for people to buy major household items?"

allowing economic news to affect consumer sentiment and spending. Economic news is measured as the share of respondents of the University of Michigan's Survey of Consumers mentioning favorable news, minus the share mentioning unfavorable news. This approach to measuring news coverage is unlike the studies previously mentioned in Section 3, which apply content analyses to economic news. Starr's (2012) results reveal that, first, *perceived* news tone explains short-term fluctuations at a six-to-twelve month horizon in the ICS when the news tone moves unexpectedly relative to economic data. Second, consumer sentiment has a small positive effect on consumer spending, which is in accordance with the results presented in Section 5.1.1. Third, unexpected changes in perceived news tone change aggregate consumption modestly.

These studies' results for German news outlets reveal that public expectations for the general economy forecast real-world economic development, whereas news does not have an unconditional direct effect (Lischka, accepted, p. 28, Table 3). So the conclusion is either that the public makes correct assumptions regarding economic development or that the public influences the economy via economic decision making (Lischka, accepted, p. 23). The latter would be the case if private consumption depended on public economic expectations. If public expectations for the general economy affect people's purchase behavior, which in turn forecasts an aggregate economic indicator, then the public influences the economy via economic decision making. The question remains whether public expectations influence economic decisions. The next section provides a corresponding analysis extending the model estimated in Lischka (accepted).

5.1.3 Data and measurement

The monthly consumer survey of the European Commission asks respondents similar questions as in the ICS about the general purchase evaluation with the question, "In view of the general economic situation, do you think that now it is the right moment for people to make major purchases such as furniture, electrical/electronic devices, etc.?" (RM) and purchase intention, "Compared to the past 12 months, do you expect to spend more or less money on major purchases (furniture, electrical/electronic devices, etc.) over the next 12 months?" (PI) (European Commission and Directorate-General for Economic and Financial Affairs 2007, p. 48). Whether RM or PI are influenced by economic news (NT, NC, NV) or public economic expectations (PE) will be tested by including RM and PI to the VAR model to explain economic indicators (EI) used in Lischka (accepted). The extended VAR model[22] has the form

$$(4a)\ \Delta EI_t = \alpha_1 + \beta_1 \Delta EI_{t-n} + \lambda_{11}\Delta PI_{t-n} + \lambda_{12}\Delta PE_{t-n} + \lambda_{13}\Delta RM_{t-n} + \lambda_{14}NT_{t-n} + \lambda_{15}NC_{t-n} + \lambda_{16}NV_{t-n} + \varepsilon_t$$

$$(4b)\ \Delta PI_t = \alpha_2 + \beta_2 \Delta PI_{t-n} + \lambda_{21}\Delta EI_{t-n} + \lambda_{22}\Delta PE_{t-n} + \lambda_{23}\Delta RM_{t-n} + \lambda_{24}NT_{t-n} + \lambda_{25}NC_{t-n} + \lambda_{26}NV_{t-n} + \varepsilon_t$$

$$(4c)\ \Delta RM_t = \alpha_2 + \beta_3 \Delta RM_{t-n} + \lambda_{31}\Delta PI_{t-n} + \lambda_{32}\Delta EI_{t-n} + \lambda_{33}\Delta PE_{t-n} + \lambda_{34}NT_{t-n} + \lambda_{35}NC_{t-n} + \lambda_{36}NV_{t-n} + \varepsilon_t$$

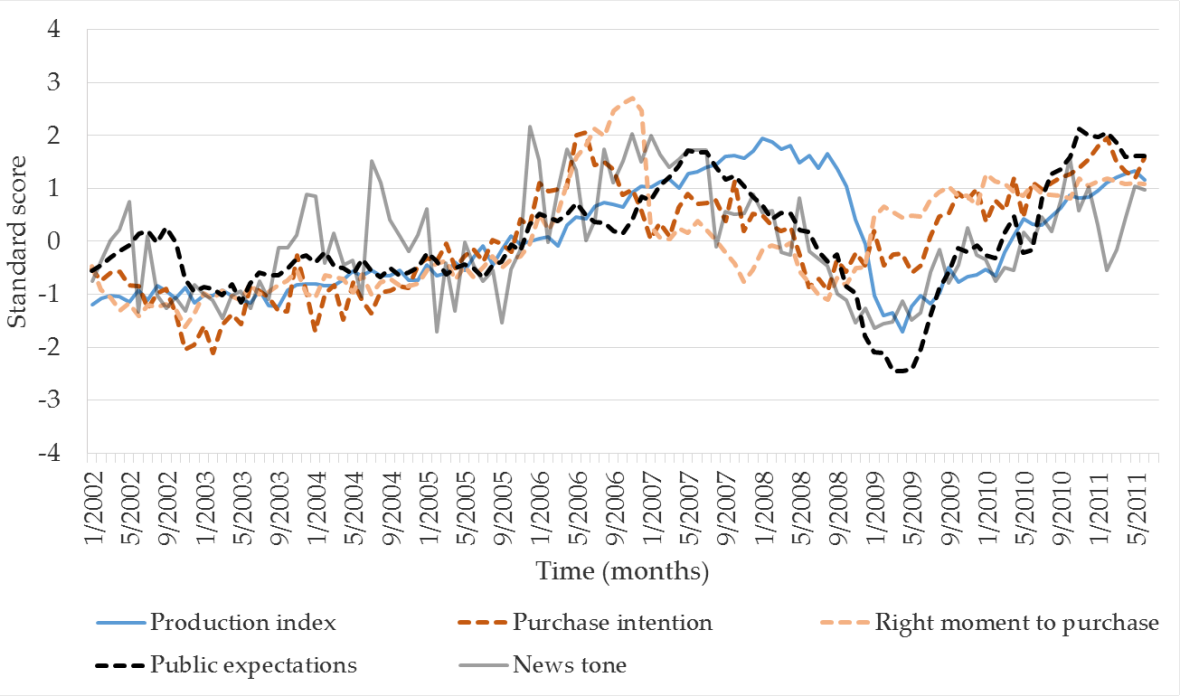
$$(4d)\ \Delta PE_t = \alpha_2 + \beta_4 \Delta PE_{t-n} + \lambda_{41}\Delta EI_{t-n} + \lambda_{42}\Delta PI_{t-n} + \lambda_{43}\Delta RM_{t-n} + \lambda_{44}NT_{t-n} + \lambda_{45}NC_{t-n} + \lambda_{46}NV_{t-n} + \varepsilon_t$$

with α being the constant, β and λ coefficients and ε_t being the residuals. The appropriate lag order of the VAR model was selected by using Akaike's information criterion and Wald lag exclusion statistics. The model is estimated based on the z-standardized data used in Lischka (accepted) which are plotted against time in Figure 14. The original PI series remains negative throughout the observation period with a mean of -28.24 on a scale between -100 to +100 revealing that the majority of the German population expected to spend about the same or less money on major purchases in the following twelve months (see details on the scale and measuring in the Appendix, Table 5 and the series plotted with

[22] The remaining equations for *NT*, *NC* and *NV* of the VAR model are omitted.

their original scale in the Appendix, Figure 29). The original RM series reveals negative values except for most of 2006 peaking 32.2 in November 2006 and from July 2009 onward with positive values of 4 to 11. PI and RM are comparably low in the first two years of the observation period. PI reaches two subsequent bottoms in November 2002 and February 2003. Afterwards, PI increases to a peak in June 2006 and RM peaks in November 2006 whereas PE peaks only in May 2007. Afterwards PI and RM decline reaching their bottoms in August 2008. During the 2008/9 recession, PI does not drop as severely as PE. RM is above its mean before PE reached its bottom. After mid-2009, PI increases and reaches a second peak in the beginning of 2011. Hence, the developments reveal that PI and RM remain more optimistic and earlier become optimistic than PE.

Figure 14: The production index, purchase intention, public expectations and news tone on the general economy



Notes. Observation period Jan 2002 – Jun 2011. All data are z-transformed. The German production index is published by the German Federal Statistical Office and is working day and seasonal adjusted. Purchase intention relates to the question, "Compared to the past 12 months, do you expect to spend more or less money on major purchases (furniture, electrical/electronic devices, etc.) over the next 12 months?"; the right moment to purchase to, "In view of the general economic situation, do you think that now it is the right moment for people to make major purchases such as furniture, electrical/electronic devices, etc.?"; and public expectations to, "How do you expect the general economic situation in this country to develop over the next 12 months?" (European Commission and Directorate-General for Economic and Financial Affairs 2007, pp. 47–48). News tone is the monthly mean of the total news on the general economy of four news outlets: ARD Tagesschau, ZDF heute, RTL aktuell, BILD (Lischka accepted, pp. 9–12).

5.1.4 Results and discussion

VAR results are summarized in Table 3 including the results of Lischka (accepted) in the first column (model 1). Purchase intention has no impact on the production index. The evaluation of the right moment to purchase forecasts purchase intention (4b). The former is forecasted by public expectations for the general economy (4c)—however, negatively. Although the survey question for RM explicitly refers to the economic situation, "In view of the general economic situation, do you think that now it is

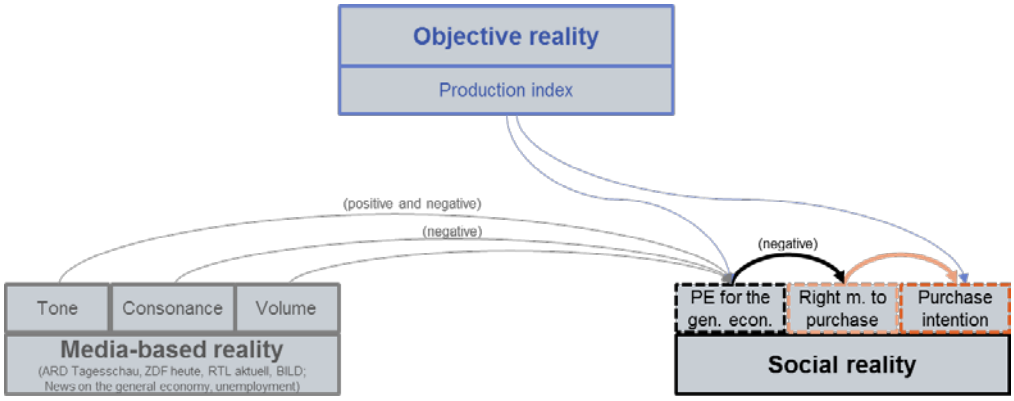
the right moment for people to make major purchases…" (European Commission and Directorate-General for Economic and Financial Affairs 2007, p. 48), PE for the general economy or the economic indicator have no (positive) leading influence. News on the general economy has no direct effect on the evaluation of RM or PI. These relationships are illustrated in Figure 15.

Table 3: Relation between production index, purchase intention, public expectations, and economic news

Dependent variable	Production index (*EI*)	Production index (*EI*)	Purchase intention (*PI*)	Right moment to purchase (*RM*)	Public expectations (*PE*)
Model	1[1]	4a	4b	4c	4d
Δ Past of dependent variable	*t*-3+°	*t*-3+°	*t*-1–**	n.s.	n.s.
Δ *EI*			*t*-1+°	n.s.	*t*-3+*
			(n.s.)	(n.s.)	(2.925°)
Δ *PI*		n.s.		n.s.	n.s.
		(n.s.)		(n.s.)	(n.s.)
Δ *RM*		n.s.	*t*-1+*		n.s.
		(n.s.)	(2.947°)		(n.s.)
Δ *PE*	*t*-1+**	t-1+**	n.s.	*t*-1–*	
	(3.842*)	(4.725*)	(n.s.)	(3.549*)	
NT	n.s.	n.s.	n.s.	n.s.	*t*-1+°, *t*-3–°
	(n.s.)	(n.s.)	(n.s.)	(n.s.)	(n.s.)
NC	n.s.	n.s.	n.s.	n.s.	t-3–°
	(n.s.)	(n.s.)	(n.s.)	(n.s.)	(n.s.)
NV	n.s.	n.s.	n.s.	n.s.	t-3+°
	(n.s.)	(n.s.)	(n.s.)	(n.s.)	(n.s.)
Constant	0.012	0.013	0.009	0.023	-0.001
Lag structure	*t*-1, *t*-2, *t*-3	*t*-1, *t*-3	*t*-1, *t*-3	*t*-1, *t*-3	*t*-1, *t*-3
n	110	110	110	110	110
adjusted R^2	0.136	0.126	0.147	0.019	0.177
F	2.060*	2.029*	2.245*	1.070	2.575**
RMSE	0.210	0.211	0.378	0.321	0.252
Durbin–Watson *d*–statistic	1.959	1.937	1.937	1.937	1.937
Portmanteau test for white noise (*Q*)	40.579	38.392	38.392	38.392	38.392

Notes. 1) Taken from Lischka (accepted, p. 28, Table 3, column 1). Cells contain the lags and signs of significant VAR coefficients with Granger causality *F* value in parentheses. For Granger causality, the null hypotheses that the coefficients on all the lags of an endogenous variable are jointly zero is tested. n.s.: not significant, °: significant on 10% level, *: significant on 5% level, **: significant on 1% level, ***: significant on .1% level. EI for general economy is the production index, PE question for general economy, "How do you expect the general economic situation in this country to develop over the next 12 months?"; RM, "In view of the general economic situation, do you think that now it is the right moment for people to make major purchases such as furniture, electrical/electronic devices, etc.?"; PI, "Compared to the past 12 months, do you expect to spend more or less money on major purchases (furniture, electrical/electronic devices, etc.) over the next 12 months?" (European Commission and Directorate-General for Economic and Financial Affairs 2007, p. 48).

Figure 15: Main influences on purchase intention of the public



Notes. Stronger influences are indicated with thicker arrows. If not stated differently, arrows indicate positive effects.

Hence, public expectations for the economy as well as economic news tone are not transmitted to future individual purchase intentions. However, previous research suggests a positive relation between the general economy and the intention to purchase durable goods as used in the present model, since purchases of durables can be postponed in economically insecure times. Intentions to purchase durable goods as opposed to consumer goods is an aspect of economic decision making that should be influenced by people's perception of the economic situation. The forecasting *in*ability of the evaluation of the right moment to purchase is not in line with previous research. However, since the estimated model at hand includes only the previous month (*t*-1) and the month three months ago (*t*-3), the model can be compared to the one-quarter-ahead model of Wilcox (2007) that also shows no forecasting abilities of both PE and RM on purchase intention. On the other hand, adding more lagging quarters to the VAR model at hand does not improve its quality and does not reveal forecasting ability either. Two explanations for the forecasting inability can be offered.

According to Katona (1957; 1974), as discussed in Section 5.1.1, purchase behavior depends on (1) the purchaser's personal financial situation, (2) the general economic outlook, and (3) the ability to buy. The model estimated here includes the general economic outlook and omits the personal financial situation and the ability to buy. Therefore, the model quality is low for purchase intention (4b). But the results do not prove that the perceived economic outlook forecasts purchase intention. The lack of a relationship may be caused by a difference in specificity—by the fact that *individual* purchase intentions are on a different dimension from the *national* general economy. To find relationships between attitudes and behavior, the two are required to correspond on a matter at hand. According to Mutz (1992), sociotropic and egocentric evaluations are not necessarily in a close relationship. Hence, *national*, i.e., sociotropic sentiment and *individual*, i.e., egocentric behavior are not in correspondence.

Since public economic expectations are not in a leading relationship with purchase intention, expectations for the economic situation do not affect consumption behavior. Therefore, the public can correctly *assume* the aggregate economic situation—but the economic sentiment of the public does not guide economic behavior.

5.2 Corporate economic behavior: Advertising expenditures

This section briefly revises the literature on the influence of public economic sentiment, consumption behavior and economic news on corporate investment decisions, especially advertising expenditures

(Section 5.2.1). The role of economic expectations in economic decision making and the economy is briefly explained in Lischka and Siegert (2013, p. 175). Advertising budgeting processes are described in Lischka, Kienzler and Mellmann (2014). An additional empirical analysis on the temporal relationship between economic news and advertising expenditures is presented in Sections 5.2.2 and 5.2.3.

5.2.1 The influence of economic news and private economic sentiment on advertising expenditures

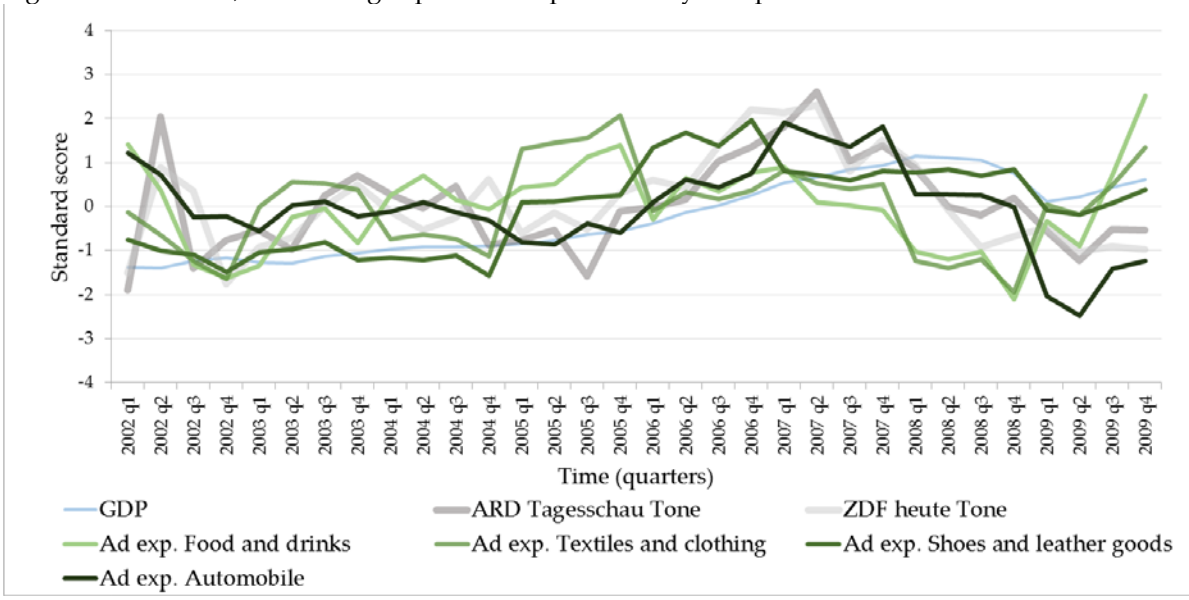
More recently, scholars have used consumer confidence in the economy to forecast real-world economic indicators other than consumption. Heim (2009) argues that consumer confidence affects corporate investments since businesses try to detect market changes and consumer confidence affects consumer spending. However, the consumer confidence index used had no additional forecasting ability for an investment model unless other variables (capacity utilization, business profitability, Dow Jones Composite Index, Real Prime Interest Rate) were included as control variables. A consumer *expectations* index that was used had additional forecasting ability for the investment model estimated. Hence, investment might be at least weakly related to consumer expectations (Heim 2009, p. 17). Likewise, Dailami and Masson (2009) argue that consumer and investor confidence are related. Adrangi and Macri (2011) state that results of consumer confidence surveys are reported in economic news and therefore play an important role in business decision making. The role of news is therefore twofold. First, economic news may affect the economic expectations of the public, which may in turn affect consumption behavior. Second, news informs the corporate decision maker about consumer sentiment either directly or moderated through a third-person effect (Gunther and Storey 2003).
Yet advertising attempts to create demand and generate sales which is suggested by the activist view (Bagwell 2001; Galbraith 1967; Jones 2007).[23] However, if sales depend on sentiments on the economy, advertising and marketing activities compete with these sentiments. At the same time, advertising activities are often planned based on present or past sales or sales expectations (see the overview in Kienzler and Lischka 2014, Table 2.2 or Lischka, Kienzler and Mellmann 2014, p. 13, Table 1). Lischka, Kienzler and Mellmann (2014) have shown that past sales are especially capable of advertising expenditures in the automobile industry, and argue that sales expectations influence future advertising budgets in the drinks, textiles and clothing industries as well as the shoes and leather goods industries. The more car sales where realized in the previous year, the more advertising expenditures are budgeted today. The authors argue that the purchase of durable goods is highly postponable compared with the purchase of nondurable goods (see discussion in Lischka, Kienzler and Mellmann 2014, pp. 34–35). Durable goods purchases and especially car purchases depend on income and income expectations and therefore on the economic situation. Even though the share of news concerned with consumer sentiment is very low (2 – 7% of economic news in the major German news outlets [see Lischka 2014, p. 11, Table 2]) and although Section 5.1.4 showed that private purchase intention is not affected by economic sentiment, business decision makers might presume news effects on the public in the present study as shown in Lischka and Siegert (2013) for economic experts.
Hence, if corporate decision makers presume that economic news guides purchase behavior and adapt advertising expenditures accordingly, economic news can forecast advertising expenditures.

[23] Although advertising activities might not always aim directly at sales effects or might fail to do so. Advertising expenditures are only one factor for advertising effectiveness as discussed in Lischka, Kienzler and Mellmann (2014, p. 40).

5.2.2 Data and measurement

In Lischka, Kienzler and Mellmann (2014), results reveal that future sales expectations guide advertising expenditures in the drinks, textiles and clothing as well as shoes and leather goods industries. The VAR model estimated in Lischka, Kienzler and Mellmann (2014) is extended with the economic news tone of ARD Tagesschau and ZDF heute as used in Lischka and Siegert (2013).
Figure 16 plots advertising expenditures and economic news tone against time. The average movement of the time series is quite similar. Advertising expenditures decrease during the first observed year and remain on average until about 2005 when an increase starts reaching the top in the end of 2006/2007. Advertising expenditures for food and drinks as well as textiles and clothing decrease from 2007 throughout 2008 whereas advertising expenditures for shoes and leather goods and automobile remain stable and decrease only in the beginning of 2009.

Figure 16: The GDP, advertising expenditures per industry and public-service economic news tone



Notes. Advertising expenditures stem from Nielsen Media Research, as published in *Media Perspektiven* (gross advertising expenditures in Germany) and are seasonally corrected. News tone is the quarterly mean of the *total* economic news per outlet.

Due to the short observation period of 32 quarters, thrifty VAR models are estimated allowing two lags of advertising expenditures (AE) and news tone (NT) to influence advertising expenditures at time t. The GDP (GDP) is included to control effects of the current state of the economy. The VAR model[24] has the form

$$(5a)\ \Delta AE_t = \alpha_1 + \beta_1 \Delta AE_{t-n} + \lambda_1 NT_{ARD,t-n} + \lambda_2 NT_{ZDF,t-n} + \gamma_1 \Delta GDP_t + \varepsilon_t$$

with α being the constant, β and λ coefficients and ε_t being the residuals. Since the number of observations is low and only few lags can be included in order not to excess the VAR model, results have to be interpreted with caution.

[24] Since only to explain advertising expenditures (AE) is of interest, the remaining equations of the VAR model are omitted.

5.2.3 Results and discussion

Results in Table 4 reveal that only the coefficients in the models for automobile advertising expenditures can be interpreted as different from zero since the *F* value is significant. All other relations have preliminary character and have to be interpreted with caution.

Table 4: Influence of public-service economic news tone on advertising expenditures per industry

		Advertising expenditures per industry			
	Dependent variable	Food and drinks	Textiles and clothing	Shoes and leather goods	Automobile
ARD Tages-schau	Δ Past of dependent variable	n.s.	n.s.	*t*-1–°	n.s.
	ARD Tagesschau NT	n.s.	n.s.	n.s.	n.s.[1]
	Δ GDP *t*	n.s.	n.s.	0.912°	2.288**
	Constant	0.181	0.207	0.035	-0.201°
	Lag structure	*t*-1, *t*-2	*t*-1, *t*-2	*t*-1, *t*-2	*t*-1, *t*-2
	n	29	29	29	29
	adjusted R^2	-0.020	0.085	0.139	0.346
	F	0.659	1.267	1.636	3.604°
	RMSE	0.874	0.917	0.497	0.534
	Durbin–Watson *d*–statistic	2.040	1.904	2.003	2.545
	Portmanteau test for white noise (*Q*)	11.348	35.467	4.635	7.610
ZDF heute	Δ Past of dependent variable	n.s.	n.s.	n.s.	n.s.
	ZDF heute NT	*t*-2+°	*t*-1–°, *t*-2+°	*t*-1–*, *t*-2+*	n.s.
	Δ GDP *t*	n.s.	-3.438*	n.s.	1.513°
	Constant	-0.089	0.458	0.419	0.134
	Lag structure	*t*-1, *t*-2	*t*-1, *t*-2	*t*-1, *t*-2	*t*-1, *t*-2
	n	29	29	29	29
	adjusted R^2	0.082	0.139	0.199	0.393
	F	1.243	1.632	2.097	4.243**
	RMSE	0.829	0.890	0.480	0.514
	Durbin–Watson *d*–statistic	2.301	2.094	2.177	2.335
	Portmanteau test for white noise (*Q*)	9.761	31.019	7.358	8.475

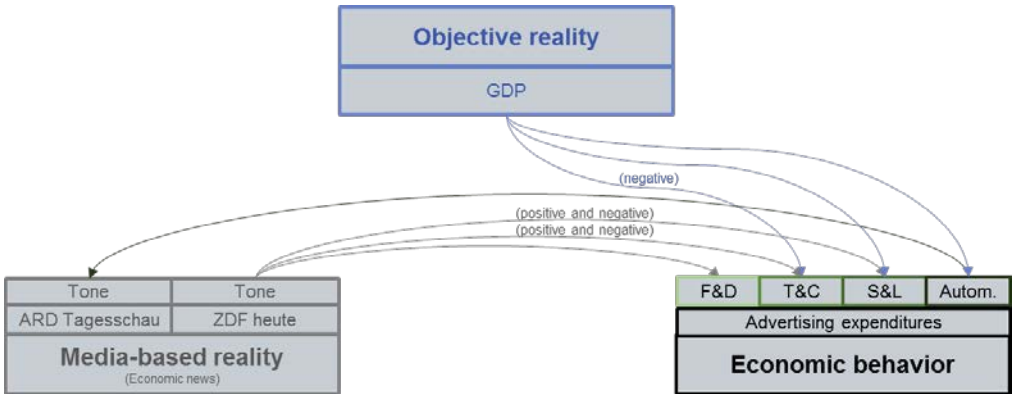
Notes. Cells contain the lags and signs of significant VAR coefficients. n.s.: not significant, °: significant on 10% level, *: significant on 5% level, **: significant on 1% level.

[1] Reversed influence: changes in automobile advertising expenditures have a positive lagged impact on the level of ARD Tagesschau news tone at *t*-1.

Changes in automobile advertising are connected to current changes in the GDP. Economic news tone of the ARD Tagesschau and ZDF heute have no lagged influence on automobile advertising expenditures. The news tone of ARD Tagesschau does not precede advertising expenditures of any of the four industries observed. The coefficients of ZDF heute indicate that economic news tone of ZDF

heute tends to affect advertising expenditures of the food and drinks, textiles and clothing as well as shoes and leather goods industries. The coefficient two lags ago (*t*-2) reveal a *positive* relationship: the more positive news tone the more advertising budget will be spent in two quarters. However, the coefficient of one past quarter (*t*-1) reveals a *negative* relationship: the more negative news tone the more advertising budget will be spent in the next quarter in the textiles and clothing as well as in the shoes and leather goods industries. The positive and negative coefficients have about the same strength and therefore no decision on which relationship is more dominant can be made. The main influences are graphically displayed in Figure 17.

Figure 17: Main influences on advertising expenditures



Notes. If not stated differently, arrows indicate positive effects. Due to insignificant *F* values of the VAR models, all relations are provisional and have to be interpreted with caution.

A positive news-advertising relationship can be interpreted as presuming that negative economic news leads to a decrease in consumption. Advertising expenditures are decreased accordingly in expectation of a decreasing revenue from sales. A negative news-advertising relationship can be interpreted as increasing advertising activities to compensate negative news tone.

Both of the advertisers' reactions are perfectly justifiable. Future-oriented advertising budgeting takes assumed sales into account. If advertisers expect a decline in sales in the future, they can either set their advertising budget pro- or anti-cyclically to their sales expectations (see Lischka, Kienzler and Mellmann 2014, pp. 33–34 for pro- and anti-cyclical as well as past-, present-, or future-oriented advertising budgeting). In order to actively manage consumer demand through marketing activities (Galbraith 1967), an immediate increase in the following quarter's advertising budget may balance out the presumed negative effects of news tone on public purchase behavior. This is in line with the activist view that advertising expenditures will increase sales by influencing consumers' inter-temporal preferences (Bagwell 2001; Jones 2007). If news tone was negative two quarters ago, advertising budgets may be cut back. Three explanations are conceivable, especially for durable goods. Either advertisers expect such strong news effects that advertising activities can no longer balance them out, or negative news is related to an actual recession that is weakening the public's ability to purchase. When the available income decreases, it is especially the purchase of durable goods that can be postponed (see discussion in Lischka, Kienzler and Mellmann 2014, pp. 34–35) and a pro-cyclical advertising strategy demands a cutback. Third, companies may realize a decrease in revenue, which means their available budget for advertising expenditure will be decreased as well. This is in line with

the deterministic view stating that "whenever manufacturers realize more revenues from sales, they tend to spend more on advertising" (Hsu et al. 2002, p. 187). This advertising cutback due to recessions and a resulting decrease in advertising income by media companies is verified in previous research (Kienzler and Lischka 2013; Picard 2001; van der Wurff, Bakker and Picard 2008). As they are the dominant contributor to media companies, media markets struggle as a result (Gustafsson 2006; Siegert et al. 2012; van der Wurff, Bakker and Picard 2008).

Hence, there is some evidence that economic news might influence advertising expenditures on an industry level beyond the effects of the general economic situation, due to presumed news effects on public purchase behavior. Results suggest a connection between public and corporate economic expectations as suggested by previous studies (Adrangi and Macri 2011; Dailami and Masson 2009). To gain a clearer picture, though, a richer model based on a longer observation period would be beneficial. Further variables on the aggregate economy and industry level that influence advertising decision making could be included.

5.3 Interim summary and conclusions

Tracing the relation between social and objective economic realities including economic behavior as illustrated in Figure 1 (path C), the following interim conclusion can be drawn from the discussion of these studies' results against the theoretical background and previous research.

C. The public makes correct assumptions about the future economic situation and unemployment development. However, public economic expectations are in no measurable leading or lagging relationship with intentional economic behavior on an aggregate level. Although the durable purchase decision is supposed to depend on the expectations for the economic situation amongst other variables, no forecasting ability of economic expectations or economic news can be revealed. A lack of correspondence between *individual* purchase intention and *national* economic expectations can be held responsible for the absent result.

   Although economic experts may not expect that corporate investments rely on general economic news (see Section 4.2), advertising expenditures as a subcategory of corporate investments can be partly explained by economic news tone. Similar to economic experts presuming that public economic decisions are in line with economic news (Section 4.2), advertising budgeting decisions considering future sales expectations may take economic news tone into account. Hence, corporate advertising decision makers may presume that private consumption behavior is geared by economic news.

   Hence, although "…the car dealers […] want all stories involving auto sales to have a rosy outlook, and they whine about negative economic stories, even if they're on a national level from AP" (Soley and Craig 1992, p. 7), people may not stop buying cars because of bad economic news or pessimistic national economic expectations. The data at hand show that when economic news becomes more negative, economic expectations also become more pessimistic but decisions (not) to purchase have made long before.

6 Overall summary and conclusions

This dissertation evaluates the relations between objective reality, media-based reality, and social reality including behavior for the economy in aggregate. Therefore, it broadens the classical mass communication research focus on the relationship between objective and media reality or the relationship between media and social reality. This entails going beyond the question of whether economic news can influence people's agendas and asking whether news can influence people's economic behavior. Hence, economic sentiment is not only regarded as a dependent but also as an independent variable. In terms of the news-sentiment-behavior relationship, private, experts and corporate decision makers are considered.
The final section summarizes the theoretical approach (6.1), critically discusses the limitations of the analysis (6.2), and draws conclusions for society, economic journalism, and media financing, as well as suggesting areas for further research (6.3).

6.1 Theoretical approach

This dissertation develops a theoretical model that dynamically connects real-world economic indicators, economic news and economic sentiment. Based on Bonfadelli's (2004, p. 237) triangular agenda-setting model, agenda building and news making, first- and second-level agenda setting, bounded rationality, the persuasive press inference (Gunther 1998, p. 486) and the influence of presumed influence (Gunther and Storey 2003) as well as the role of economic sentiment for economic behavior are discussed. Micro foundations (Coleman 1986; 1990) combining attitudinal and behavioral aspects and the research on collective effects and temporal relations (Rössler 1997) are complemented. The micro level of Coleman's macro-micro-macro model is crucial to implement economic behavior into the triangular agenda-setting model.
Based on this theoretical outline, the literature is reviewed for the relation between objective and media-based realities, the media and the social as well as the social and the objective realities. Regarding the relation between the objective and the media realities, i.e., agenda building, the journalists' inability to provide a reproduction of the real world (Weischenberg 1994, p. 427) and the role of organizational influences on news making are examined. Concerning relation between the media and the social realities, public agenda setting, media dependency (Ball-Rokeach and DeFleur 1976), the obtrusiveness of economic topics and the obtrusive contingency hypothesis (Blood 1981; Zucker 1978) as well as the sociotropic character of economic sentiments (Hagen 2004; Mutz 1992) are discussed. For the expert's agenda setting, the effect of presumed influence (Gunther and Storey 2003) as a third-person effect (Davison 1983) is considered. To explain the relation between social and objective realities, sentiment is discussed as intermediary variable between economic information and public as well as corporate economic behavior according to Katona (1957). For corporate economic behavior, the role of expected public behavior is explored.
The theoretical considerations expect that economic news partly aligns with real-world developments but cannot copy them. Further, economic news on national issues should have only a limited ability to forecast public economic sentiment and even less ability to forecast the sentiment of economic experts due to the obtrusiveness of the topic and low media dependency but good accessibility of real-world cues. Yet both a higher consonance of news coverage and a recession period should enhance news effects. Theory and previous research leads to the expectation that economic sentiment will guide

economic behavior that adds up to real-world economic indicators. Hence, when referring to the relations between the realities as lined out in Figure 1, theory and previous research suggest that the objective-media and media-social relationships should be weak whereas the sentiment-behavior relationship as part of the social-objective relation should be stronger.

6.2 Limitations and critical assessment of the analysis

The analysis is based on secondary data from different sources reflecting the population or experts, aggregate national or industry level. The data lack a connection on the micro level of the individual or the company. Therefore, there is a danger of ecological fallacy when measuring on an aggregate level and concluding on processes on the micro level. Ecological fallacy can stem from different levels of aggregation between considered objects of investigation. The probability of making ecological fallacies is discussed in the following.

The goal of the news outlet selection was to cover the most important news outlets in terms of reach in Germany and to cover an average news portfolio as well as to consider the credibility of news outlets in the public. Therefore, the news outlet selection allows the analysis of collective agenda-setting effects for the public. The measures of the media reality match the news use of the population but insufficiently the news use of experts or corporate decision makers. In addition, the population is a subset of the national level of the objective reality. Hence, the aggregation levels are not completely equal.

The analysis of collective media effects on the social reality does not require a micro level connection—as long as the social structure and the level of aggregation is similar between the samples (Hagen 2005, pp. 26–27) and the level of news consonance within and across news outlets is sufficiently high, which is relevant for follow-up conversation (Maurer 2004). Data on economic news are based on the coding of the total economic news of each investigated news show and on the first three pages of the investigated tabloid newspaper. The consonance of the news tone for each news outlet and over all selected news outlets is taken into account in the analyses.

Still, quality newspapers such as the Frankfurter Allgemeine Zeitung or the Süddeutsche Zeitung that obtain a minor reach compared with the selected news outlets but may offer a greater diversity of economic news topics (Schöhl 1987) and serve as leading media and set the intermedia agenda (Jarren and Vogel 2009; Mast 2012, pp. 211–294; Noelle-Neumann and Mathes 1987). However, also the ARD Tagesschau news guides other news outlets (Weischenberg, Löffelholz and Scholl 1994). News outlets specified to economic and business news such as the Handelsblatt were not included. Both news types may especially be valuable when estimating intermedia agenda setting. The lack of further news outlets could involve two limitations. First, the total economic news consonance over various types of news outlets cannot be estimated. Second, if news tone of quality newspapers differs considerably from the selected news outlets in the present study, a lack of relationships between economic news and public sentiment may be attributed to differences in sentiment that transmits in follow-up conversations. The quality newspapers mentioned are read by better educated people who may be early recognizers or opinion leaders. Their economic sentiments are more likely to be accepted in follow-up conversations by others. However, since such print news outlets serve as key media and set the intermedia agenda, consonant economic news between them and the selected news outlets in the present study can be expected (Noelle-Neumann and Mathes 1987, see also e.g., Eilders 2002 on the degree of consonance in German quality newspapers; Degenhard 2011 concerning the synchronal behavior of German newspapers and conformity of the media system). Further, a high similarity in issue salience among

German TV news and a close relationship between the agenda of early recognizers and German TV evening news agenda was revealed by previous research (Brosius and Weimann 1996). Therefore, the news can be considered consonant across news outlets in Germany and the present studies should not suffer too much from an exclusion of other news media.

The coding of news content used in the present studies reveals the media-based reality. But it cannot give evidence on what may turn out to be the *perceived* news tone as used in Starr (2012). Both the perceived news tone and the tone of follow-up conversations are important to understanding agenda-setting processes and should be considered in future research.

For economic sentiment, this dissertation focuses on expectations for the development of the general economy and unemployment based on a quota sample of the German population. The general economy and unemployment are two major economic news topics besides topics relating to economic policy making. Forward-looking expectations are assumed to be more relevant for future economic behavior than the evaluation of the current state of the economy or unemployment.

To study objective reality, the GDP, the production index and the unemployment rate were selected on aggregate level. The former two indicators relate to the current state of the economy, the latter one is a following indicator of the economy. The GDP is based on the market value of the final goods of all industries within a nation (production approach) and includes corporate investments, private consumption and government spending (expenditure approach). Unemployment numbers result from in- or decreasing productivity. The lagging characteristic of unemployment can explain that the production index as current indicator of the economy better forecasts public expectations on national unemployment.

Further, for advertising expenditures, aggregation at an industry level might balance out differences in advertising budgeting decision making between companies *within* an industry. Collective behavior on a company level are questionable since many practices for and influences on advertising budgeting exist. From the analysis of news, sales and advertising, conclusions on expenditures on an industry level can only be made based on the average behavior of an industry but not on the behavior of the companies within each industry. Here, a danger of ecological fallacy exists when concluding on the decision making of *one* company.

The analysis of this dissertation goes beyond the estimation of simultaneous relations exploring truly dynamic relations by estimating VAR models. These models take into account dynamic leading and lagging relations between the objects of investigation. VAR analysis and the concept of Granger causality make it possible to come to conclusions on preceding or subsequent relationships. The VAR coefficient reveals a linear relationship between a variable X at time $t\text{-}n$ on Y at time t (Sims 1980). It also shows how strongly Y depends on its own past. Granger causality exposes whether a variable Y at time t can be significantly better forecast by using the past of another variable X instead of its own past alone (Granger 1969). If so, X Granger causes Y. However, to infer genuine causality still requires profound theoretical arguments. The analysis therefore reveals temporal leading or lagging Granger causal relationships but does not consider simultaneous relationships. This means that, although leading or lagging relations may not be found, simultaneous connections may exist.

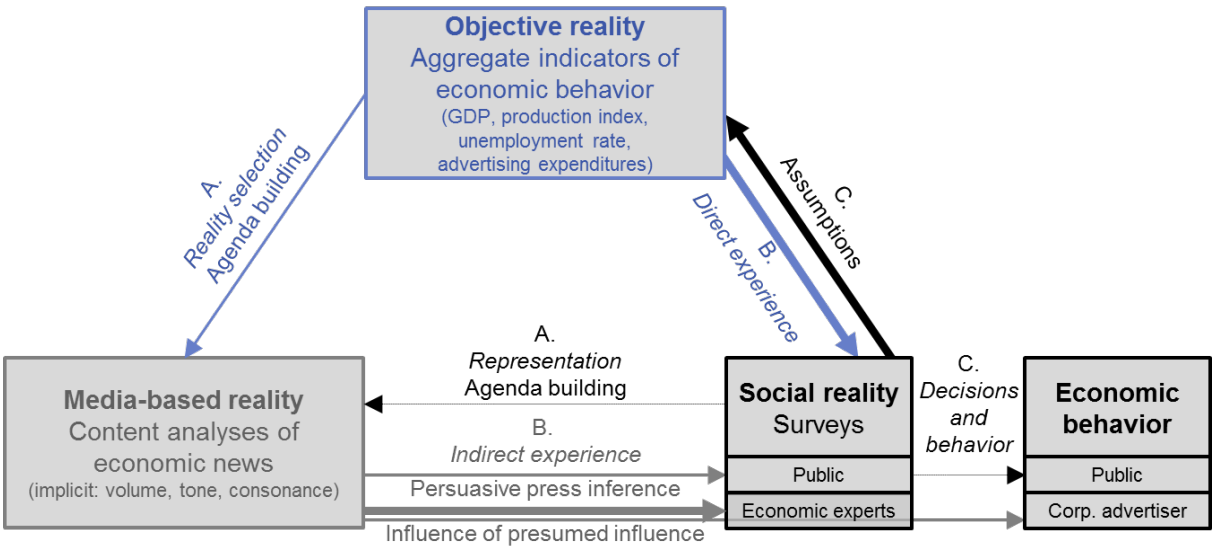
This dissertation estimates dynamic relations between objective, media, and social realities for 32 (economic news/advertising), 38 (economic news/experts' sentiments), 76 (advertising/sales) and 114 (economic indicators/economic news/public sentiment) time intervals. On the one hand, VAR modeling on as few as 32 and 38 cases comprises very small samples. On the other hand, fewer cases represent a higher degree of temporal aggregation in this dissertation (quarters instead of months) and therefore

one quarter includes the temporal aggregated information of three months. Further, all models were estimated using a small-sample degrees-of-freedom adjustment when estimating the error variance-covariance matrix and report small-sample *t* and *F* statistics.
The observation periods include the dotcom crisis in 2000, a slight recession in 2003/4, the financial crises following the subprime crisis from 2007 onwards and a severe recession in 2008/9 in Germany. Therefore, results enable statements on the relations in upturn and recession periods as well as in an international crisis.

6.3 Final discussion and conclusions

The empirical tests reveal that temporal relations between the three realities are weak. Small forecasting abilities between the objective and media-based realities as well between as media and social realities could be expected and were found. But the relationship between sentiment and behavior was expected to be stronger than found in this study's results. Figure 18 provides a simplified overview of the relations between objective, media-based and social realities. Most temporal relations between objective, media, and social realities vary over time according to the economic situation. The 2008/9 recession constitutes an especially important period, causing changes to occur in the media-based reality among news outlets and affecting social reality as well.

Figure 18: Empirical relations between objective, media-based, and social economic realities



Source: Compiled by the author based on Bonfadelli (2004, p. 237).

Notes. Stronger influences are indicated with thicker arrows. Thinnest arrows represent theoretical but no empirical confirmed relations.

In the following, the main results are summarized and conclusions are given on each relationship.

A. Economic news is no copy of the real-world aggregate economy. News issues and their tone, consonance and volume on the same topic are diverse and therefore more volatile than aggregate economic indicators. Yet economic news reflects the aggregate reality when the topic is less elusive and complex or the economic situation is critical. Real-world employment-related events that

become part of the news are more closely related to aggregate unemployment numbers, while events that are selected for news on the general economy seems to fluctuate strongly compared with the general state of the economy—especially during stable economic periods. The most stable relationship revealed between objective and news-based realities is that news interpretation becomes more consonant following economic downturns and increased unemployment, and less consonant after positive changes. Hence, social mechanisms of reference (Weischenberg 1994) and therefore second-level agenda building, i.e., real-world influences on news tone, depend on the elusiveness of a topic and on the negative significance of an event.

News tone, consonance, and volume differ in level among the private news outlets and between the private and public service news outlets considered in this dissertation, especially during the financial crisis period. These differences can be ascribed to organizational influences on news making, as suggested by Reinemann (2007) and Jäckel (2007). Yet, the trend over time is similar for private and public service news outlets. Thus, norms, structures, and actors on the meso level of the profession's and news company's formal and informal rules and conventions (Altmeppen 2006, p. 119) affect differences in the *level* of news characteristics but no changes in the *trend*. Trend changes are stimulated by real-world events that lead to changes in journalistic working modes as well (Scheufele 2003).

B. The public economic sentiment depends more strongly on real-world cues than on economic news. People's own experience is more likely than the news to be a source of tips on the general economic situation and unemployment. Public expectations are not as volatile in their development as is news coverage, over time. Although this dissertation focuses on sociotropic perceptions which are said to depend rather strongly on news (Hagen 2004; Mutz 1992), national economic news topics can be considered obtrusive (Demers et al. 1989; Ju 2008) and more dependent on real-world experiences according to the obtrusive contingency hypothesis (Blood 1981; Zucker 1978). Results reveal that real-world economic indicators forecast public sociotropic expectations better and more consistently, supporting the obtrusive contingency hypothesis. Before 2007, the public is barely influenced by economic news. From 2007 onwards or during the 2008/9 recession, news tone and volume can partly forecast public sociotropic economic expectations. Hence, the news may indicate whether an economic situation should be perceived as a social *problem,* as suggested by Mutz (1992). News effects on the public can be interpreted to be in line with the persuasive press inference (Gunther 1998).

   The relation between news and social reality estimated with aggregate indicators potentially measures collective media effects and is supposed to depend on news consonance (Hagen 2005, p. 30; Maurer 2004, p. 410). However, news consonance does not increase news tone effects but news volume sometimes does. Instead, a decline in news consonance tends to lead to more positive economic sentiment of the public. The public might interpret less consonant news tone on the same topic as a positive sign. Yet the increase of news volume leads to stronger collective news tone effects. Hence, a "more" instead of a "more of the same" is sufficient to increase second-level agenda-setting effects. However, in this study news consonance was measured with news tone consonance for broad and rather obtrusive economic news topics. Measuring news tone consonance on a narrower and less obtrusive economic issue may reveal an interaction effect of consonance for second-level agenda setting. For future research it is also interesting to examine what tone follow-up conversation develops as this is an essential link for collective media effects. For example, to analyze tweets or comments on online news on the economy could reveal how the

public interprets journalistic interpretation and which news tone more likely transfers to follow-up conversations.

From 2007 onward the public relies more than do experts on the news for developing their sentiment on the general economy. The experts' economic evaluation of the current state of the economy can be weakly forecast through news tone—but not their expectations. However, interestingly, economic experts rely on economic news when they evaluate current and future private consumption. This result can be interpreted as a presumption of experts that the public adjusts its consumption behavior to economic news. This is in line with the third-person effect of the presumed influence of news on a heterogeneous group of people (Gunther and Storey 2003).

In terms of societal implications, economic news does not have the power to shift public economic expectations without the support of real-world experiences. This also indicates that news does not function as an early warning system that alarms people about economic recessions but merely supports the notion of a problem.

C. Although the public makes correct assumptions about developments in the economy and unemployment, economic news or expectations barely affect economic behavior of the public, as measured by the intention to purchase major durable goods. Thus, the general economic expectations are not in positive alignment with intentional economic behavior—not even with the evaluation as to whether it is the right moment to purchase, relative to the perceived state of the economy. The agreement to both behavioral measures declines months before the economic expectations become more pessimistic and the actual economic situation worsens in 2008/9. Hence, intentional behavior may be better forecast through experiences and expectations for people's own financial situation and the people's ability to buy, which are defined as influences aside from the general economic outlook (Katona 1957, p. 124; 1974, p. 22). The individual's personal financial situation and the ability to buy are non-sociotropic but egocentric measures (Mutz 1992) and better correspond to the individual intention to purchase. Hence, results of this analysis are in line with previous research revealing that news barely exerts an influence on such egocentric evaluations (Hagen 2004; Mutz 1992).

   In contrast, corporate advertising expenditures can partly be forecast by economic news tone. Although bad economic news does not cause a decrease in private purchase intention, bad news may lead to a change in corporate advertising expenditures. The analysis on industry level indicates that both reactions are possible: an immediate increase and a subsequent decrease of advertising budget. Hence, corporate decision makers may expect that news influences the economic behavior of the public which would also be in line with the influence of presumed influence (Gunther and Storey 2003). In fact, the actual economic news effect is less strong than expected by third parties, which explains why "…the car dealers […] want all stories involving auto sales to have a rosy outlook, and they whine about negative economic stories, even if they're on a national level from AP" (Soley and Craig 1992, p. 7). Therefore, economic news not only indicates consumer confidence by reporting the results of consumer surveys (Adrangi and Macri 2011) but delivers implicit signals on consumer confidence through economic news tone. An increase in advertising activities may balance out the presumed effects of bad news and secure consumption, which is in line with the idea of actively managing consumer demand with marketing activities (Galbraith 1967; Katona 1974). On the other hand, a recession that settles into negative economic news for the long term is linked to a deteriorating ability of the public to purchase, which cannot be balanced out with higher advertising expenditures. Also, decreasing

purchase ability and therefore decreasing sales reduce available budgets in companies, which leads to decreasing advertising expenditures. This is in line with the deterministic view stating that "whenever manufacturers realize more revenues from sales, they tend to spend more on advertising" (Hsu et al. 2002, p. 187). If advertisers set their media budgets according to economic news, constantly long-term negative economic news related to a recession leads to a decrease in advertising income, as found by previous research (Picard 2001; van der Wurff, Bakker and Picard 2008). On the other hand, short-term negative news may lead to an increase in advertising budgets.

Overall, economic news is partly responsible for setting the public economic sentiment—but news cannot influence the economic behavior of the public. Hence, incorrect economic news or news that is too pessimistic cannot cause a decrease in consumption or even a recession—at least not when a long lasting economic upturn occurred before. Not only the strength of the recession but also the economic situation before a recession may determine whether economic behavior is linked to economic expectations or economic news. Of course, citizens who make well-informed economic decisions are essential to an economy (Stiglitz 2011, p. 23). However, news is only one source of economic information among many. Since people perceive economic indicators every day, the news media play a fairly unimportant role in setting national economic expectations and no role at all in determining individual economic behavior. In contrast, if expectations for economic behavior are made for heterogeneous "others," economic news does play a role. That is, economic behavior of the public is presumed through implicit news cues and to some degree translates "into entrepreneurial decisions, particularly investments" (Noelle-Neumann 1987, p. 292). However, the presumption of the effects of economic news on public economic behavior may be overrated by corporate decision makers since public economic behavior is the result neither of the public sentiment on the economy nor of the tone of economic news in this study. For media financing, a deteriorated economic situation reflected in a negative economic news tone may at first lead to an increase but will later lead to a decline in advertising income.

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Appendix

Table 5: Overview over data, sources and descriptive

	Coun-try	Data source	Ques-tion	Temp. agg-rega-tion	Period	Unit of measure (scale)	Descriptive (non-z-standardized data) Min.	Max.	Mean	Stdev.
Objective reality (Non-standardized data are displayed in Lischka and Siegert 2013 (GDP) and Lischka, Kienzler and Mellmann 2014 (adv., sales))										
• GDP	DE	Eurostat		Q	Q1 2002 – Q2 2011	m Eur	530'310	646'750	580'716	36'285
• GDP	CH	Eurostat		Q	Q1 2002 – Q2 2011	m Eur	73'074	117'520	85'179	11'916
• Production index (EI) (Figure 19)	DE	GFSO		M	Jan 2002 - June 2011	2010=100	85.60	110.80	97.42	6.90
• Unemployment rate (EI) (Figure 20)	DE	GFSO		M	Jan 2002 - June 2011	Percent	5.90	11.50	8.90	1.51
• Advertising expenditures		NMR								
o Food	DE			Q	Q1 1992 – Q4 2009	100m Eur	3.29	4.88	4.27	0.27
o Drinks	DE			Q	Q1 1992 – Q4 2009	100m Eur	2.02	2.98	2.58	0.26
o Tobacco	DE			Q	Q1 1992 – Q4 2009	100m Eur	0.03	0.29	0.17	0.06
o Health and pharmaceutics	DE			Q	Q1 1992 – Q4 2009	100m Eur	1.19	2.12	1.66	0.20
o Textile and clothing	DE			Q	Q1 1992 – Q4 2009	100m Eur	0.63	1.03	0.87	0.08
o Shoes and leather	DE			Q	Q1 1992 – Q4 2009	100m Eur	0.13	0.29	0.19	0.08
o Automobile	DE			Q	Q1 1992 – Q4 2009	100m Eur	3.27	4.92	4.26	0.41
• Sales index		Eurostat								
o Food	DE			Q	Q1 1992 – Q4 2009	2005 = 100	63.55	126.12	89.23	16.39
o Drinks	DE			Q	Q1 1992 – Q4 2009	2005 = 100	77.34	109.63	97.97	6.25
o Tobacco	DE			Q	Q1 1992 – Q4 2009	2005 = 100	67.05	106.93	89.40	9.60
o Health and pharmaceutics	DE			Q	Q1 1992 – Q4 2009	2005 = 100	65.74	118.72	84.73	13.35
o Textile and clothing	DE			Q	Q1 1992 – Q4 2009	2005 = 100	75.47	162.50	120.06	21.00
o Shoes and leather	DE			Q	Q1 1992 – Q4 2009	2005 = 100	73.24	118.21	105.13	8.81
o Automobile	DE			Q	Q1 1992 – Q4 2009	2005 = 100	66.22	117.85	90.56	12.02

(Table 5 continued)

Media-based reality	Media Tenor							
• Total economic news, (Figure 21, Figure 22)								
o ARD Tagesschau (1)								
o NT	DE	Q	Q1 2002 – Q2 2011	Mean (1/0/-1)	-0.57	0.15	-0.27	0.16
o NV	DE	Q	Q1 2002 – Q2 2011	Abs. no. of reports	66	479	206.68	107.37
o ZDF heute (2)								
o NT	DE	Q	Q1 2002 – Q2 2011	Mean (1/0/-1)	-0.56	0.06	-0.29	0.15
o NV	DE	Q	Q1 2002 – Q2 2011	Abs. no. of reports	53	529	209.29	120.15
o RTL aktuell (3)								
o NT	DE	Q	Q1 2002 – Q2 2011	Mean (1/0/-1)	-0.66	0.12	-0.27	0.16
o NV	DE	Q	Q1 2002 – Q2 2011	Abs. no. of reports	41	240	128.39	52.28
o BILD (4)								
o NT	DE	Q	Q1 2002 – Q2 2011	Mean (1/0/-1)	-0.53	0.47	-0.17	0.25
o NV	DE	Q	Q1 2002 – Q2 2011	Abs. no. of articles	17	360	196.21	103.33
o SRF Tagesschau								
o NT	CH	Q	Q1 2007 – Q1 2011	Mean (1/0/-1)	-0.76	0.64	-0.16	0.36
o NV	CH	Q	Q1 2007 – Q1 2011	Abs. no. of reports	12	350	101.55	95.80
• General economy (1), (2), (3), (4) (Figure 23 – Figure 25)								
o NT	DE	M	Jan 2002 - June 2011	Mean (1/0/-1)	-0.91	0.75	-0.18	0.43
o NC	DE	M	Jan 2002 - June 2011	Stdev. of NT	0.30	1.00	-0.18	0.15
o NV	DE	M	Jan 2002 - June 2011	Abs. no. of reports/articles	4	129	36.42	26.10
• Employment (1), (2), (3), (4) (Figure 26 – Figure 28)								
o NT	DE	M	Jan 2002 - June 2011	Mean (1/0/-1)	-0.95	0.57	-0.28	0.31
o NC	DE	M	Jan 2002 - June 2011	Stdev. of NT	0.23	0.94	0.68	0.13
o NV	DE	M	Jan 2002 - June 2011	Abs. no. of reports/articles	12	112	42.16	19.31

(Table 5 continued)

Social reality										
• Public (Figure 29)		EC CS[1]								
o Expectations for the general economy (PE)	DE		#1	M	Jan 2002 - June 2011	Mean (-100 - +100)[3]	-52.10	21.20	-12.71	16.02
o Expectations for unemployment (PE)	DE		#2	M	Jan 2002 - June 2011	Mean (-100 - +100)[3]	-18.60	71.90	24.02	23.20
o Evaluation of the general economy	DE		#3	M	Jan 2002 - June 2011	Mean (-100 - +100)[3]	-67.30	29.30	-25.59	27.71
o Purchase intention (PI)	DE		#4	M	Jan 2002 - June 2011	Mean (-100 - +100)[3]	-38.90	-17.90	-28.24	5.04
o Evaluation of the right moment to purchase (RM)	DE		#5	M	Jan 2002 - June 2011	Mean (-100 - +100)[4]	-30.80	32.20	-7.30	14.62
• Experts (Figure 30, Figure 31)		Ifo WES[2]								
o Evaluations										
o GDP	DE		#6	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	1.40	8.80	4.29	2.48
o Investments	DE		#7	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	1.20	8.20	4.08	2.47
o Consumption	DE		#8	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	1.20	6.60	3.17	1.61
o Expectations										
o GDP	DE		#9	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	2.60	8.30	6.17	1.53
o Investments	DE		#10	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	2.40	8.10	6.04	1.52
o Consumption	DE		#11	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	2.70	7.80	5.96	1.27
o Evaluations										
o GDP	CH		#6	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	1.80	9.00	5.58	2.20
o Investments	CH		#7	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	1.60	8.80	5.07	2.30
o Consumption	CH		#8	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	3.50	8.70	6.09	1.57
o Expectations										
o GDP	CH		#9	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	2.10	8.70	5.58	1.68
o Investments	CH		#10	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	2.10	8.80	5.47	1.70
o Consumption	CH		#11	Q	Q1 2002 – Q2 2011	Mean (9/5/1)	2.10	7.40	5.04	1.30

Notes. GFSO = German Federal Statistical Office. NMR = Nielsen Media Research. M = Monthly, Q = Quarterly. Data name abbreviations are equivalent to the ones used in Lischka (accepted) except for NC (here: *not* inverted standard deviation of NT).

[1] The Joint Harmonised EU Programme of Business and Consumer Surveys
[1] Ifo World Economic Survey
[2] (B) ranging from -100 to +100 on the basis of weighted averages as B = (PP + ½P) – (½M + MM) where PP + P + E + M + MM + N = 100 (N is the percentage of respondents without answer)
[3] (B) ranging from -100 to +100 on the basis of weighted averages as B = PP – MM where PP + E + MM + N = 100 (N is the percentage of respondents without answer)
#1 How do you expect the general economic situation in this country to develop over the next 12 months? ...”get a lot better” (PP), “get a little better” (P), “stay the same,” (E) “get a little worse” (M) or ”get a lot worse” (MM)
#2 How do you expect the number of people unemployed in this country to change over the next 12 months?: ”increase sharply” (PP), “increase slightly” (P), “remain the same,” (E) “fall slightly” (M) or ”fall sharply” (MM)
#3 How do you think the general economic situation in the country has changed over the past 12 months?: ”got a lot better” (PP), “got a little better” (P), “stayed the same,” (E) “got a little worse” (M) or ”got a lot worse” (MM)
#4 Compared to the past 12 months, do you expect to spend more or less money on major purchases (furniture, electrical/electronic devices, etc.) over the next 12 months?: ”much more” (PP), ”a little more” (P), ”about the same” (E), ”a little less” (M), ”much less” (MM)
#5 In view of the general economic situation, do you think that now it is the right moment for people to make major purchases such as furniture, electrical/electronic devices, etc.? ... ”yes, it is the right moment now” (PP), ”it is neither the right moment nor the wrong moment” (E), ”no, it is not the right moment now” (MM)
#6 This country’s general situation regarding overall economy present judgment: ”good” (value 9), ”satisfactory” (value 5), ”bad” (value 1)
#7 This country’s general situation regarding capital expenditures present judgment: ”good” (9), ”satisfactory” (5), ”bad” (1)
#8 This country’s general situation regarding private consumption present judgment: ”good” (9), ”satisfactory” (5), ”bad” (1)
#9 This country’s general situation regarding overall economy from now on: expected situation by the end of the next 6 months: ”better” (9), ”about the same” (5), ”worse” (1)
#10 This country’s general situation regarding capital expenditures from now on: expected situation by the end of the next 6 months: ”better” (9), ”about the same” (5), ”worse” (1)
#11 This country’s general situation regarding private consumption from now on: expected situation by the end of the next 6 months: ”better” (9), ”about the same” (5), ”worse” (1)

Figure 19: Objective reality: Production index, non-z-transformed data

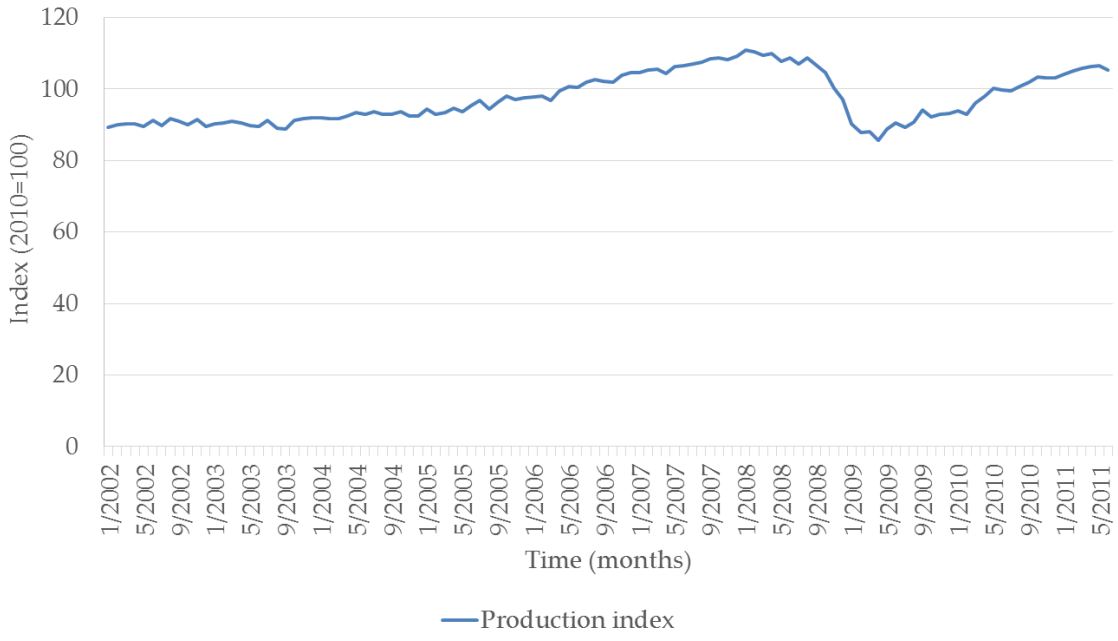


Figure 20: Objective reality: Unemployment rate, non-z-transformed data

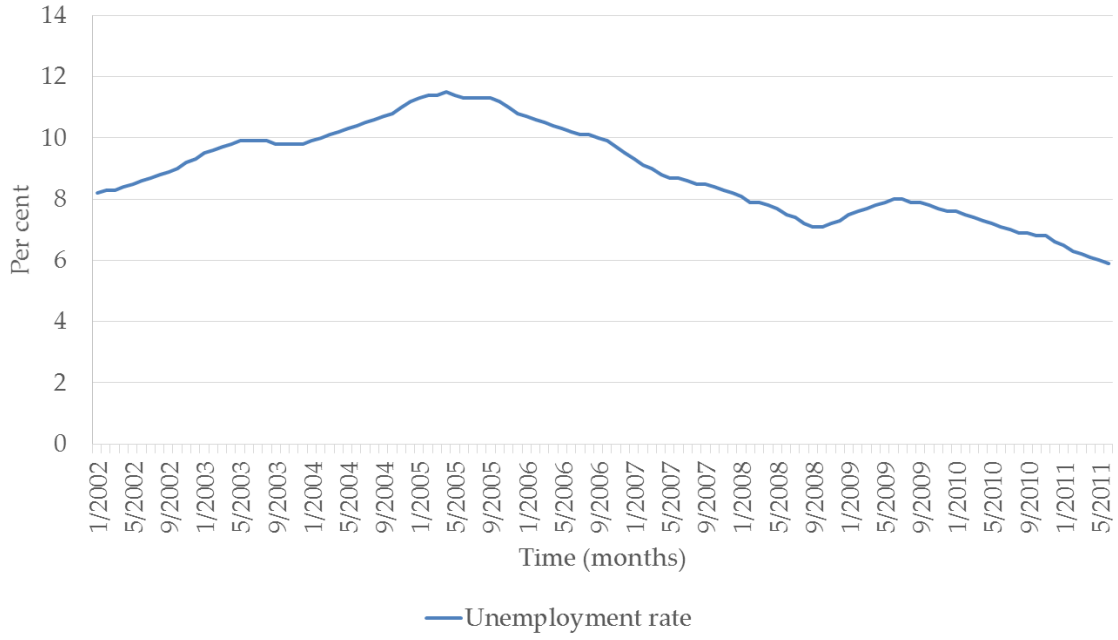


Figure 21: Media-based reality: News tone of total economic news per news outlet, non-z-transformed data

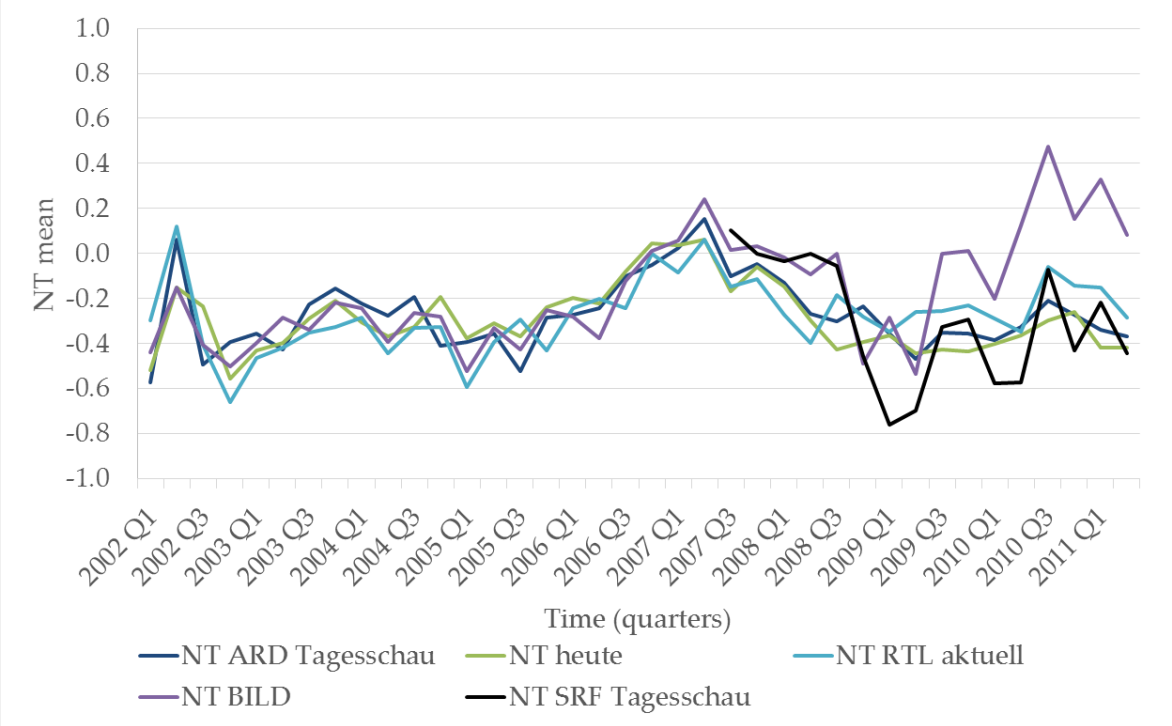


Figure 22: Media-based reality: News volume of total economic news per news outlet, non-z-transformed data

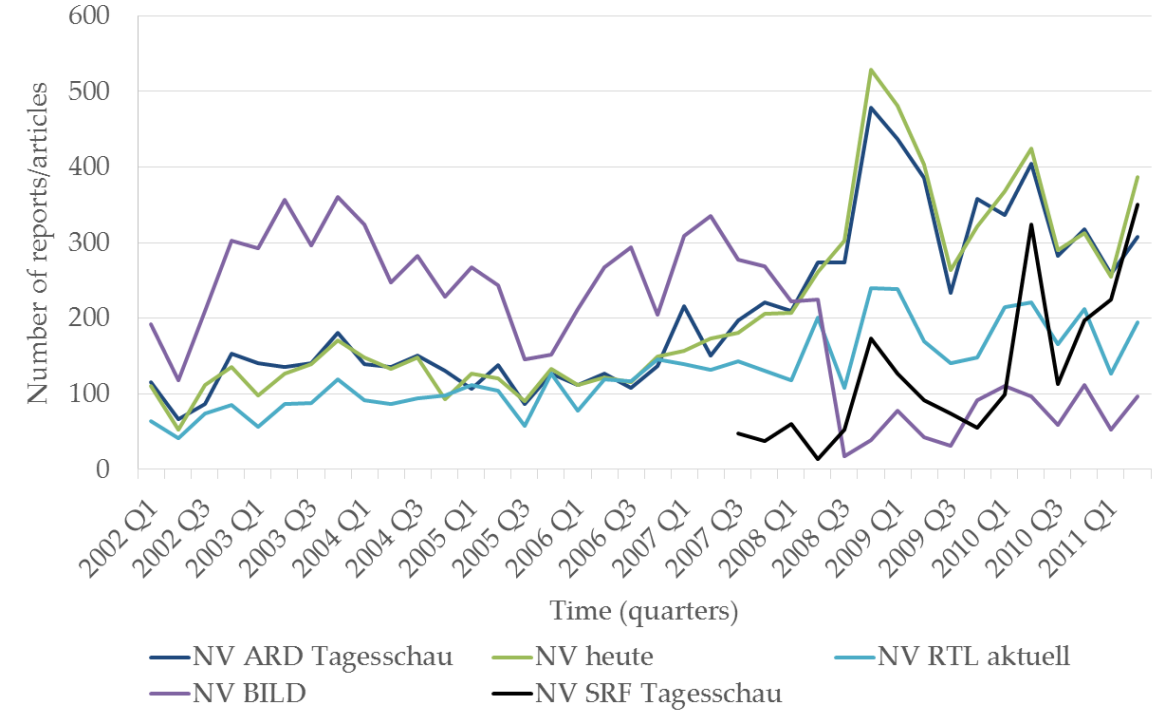


Figure 23: Media-based reality: News tone on the general economy, non-z-transformed data

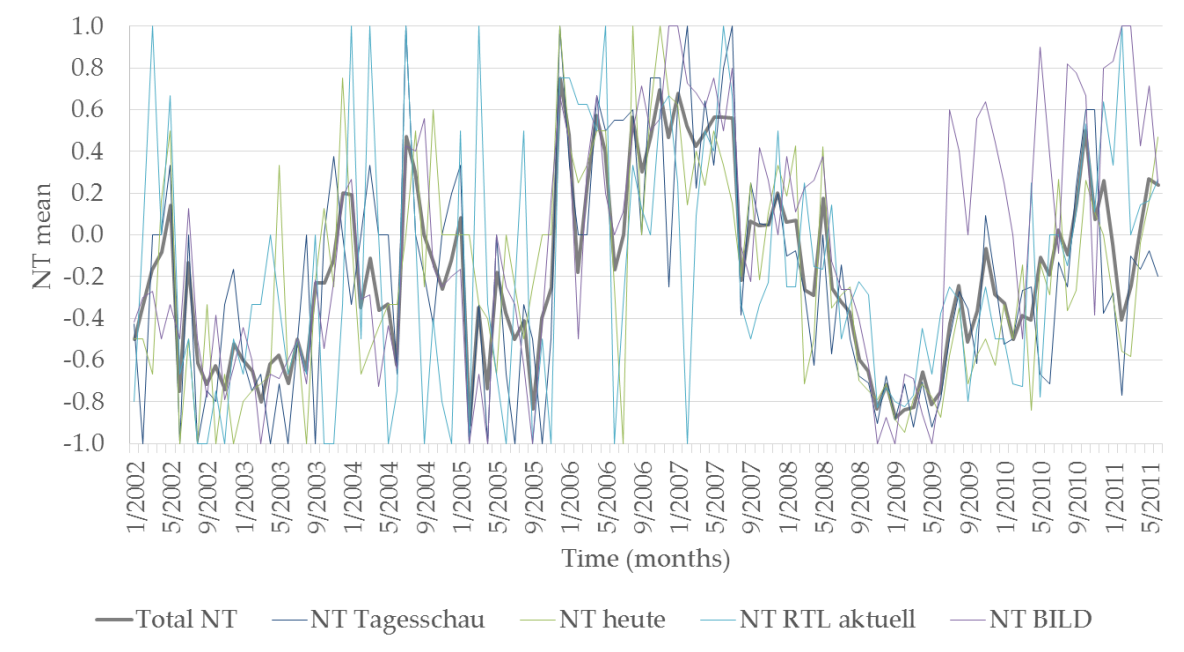


Figure 24: Media-based reality: News tone consonance on the general economy, non-z-transformed data

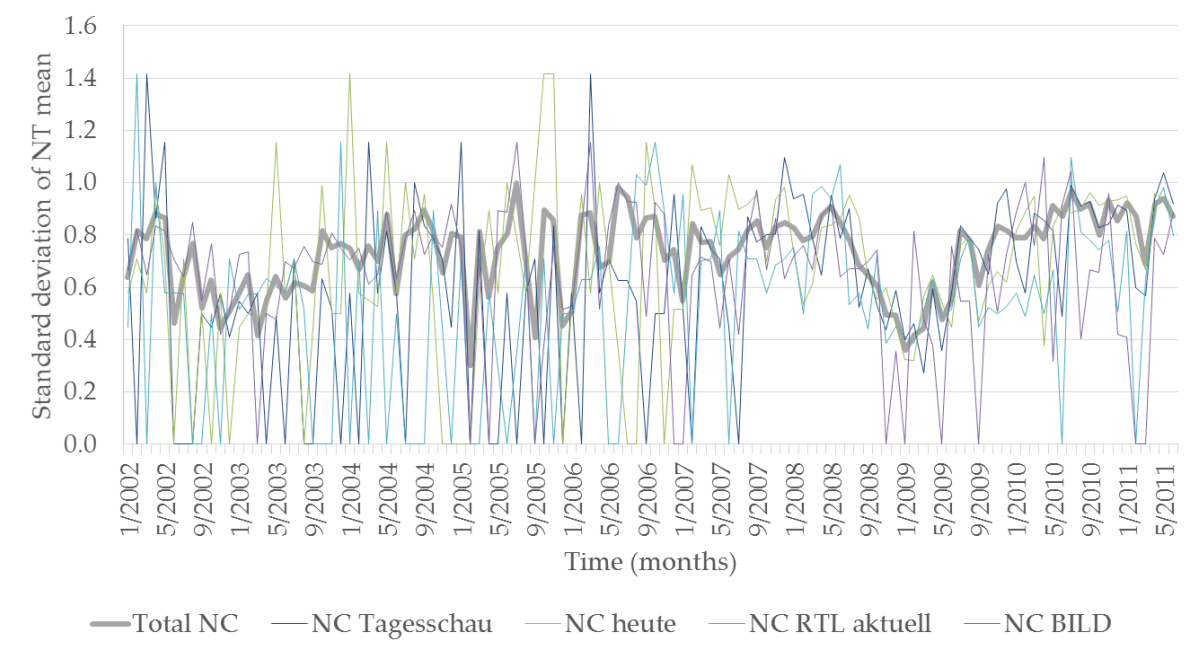


Figure 25: Media-based reality: News volume on the general economy, non-z-transformed data

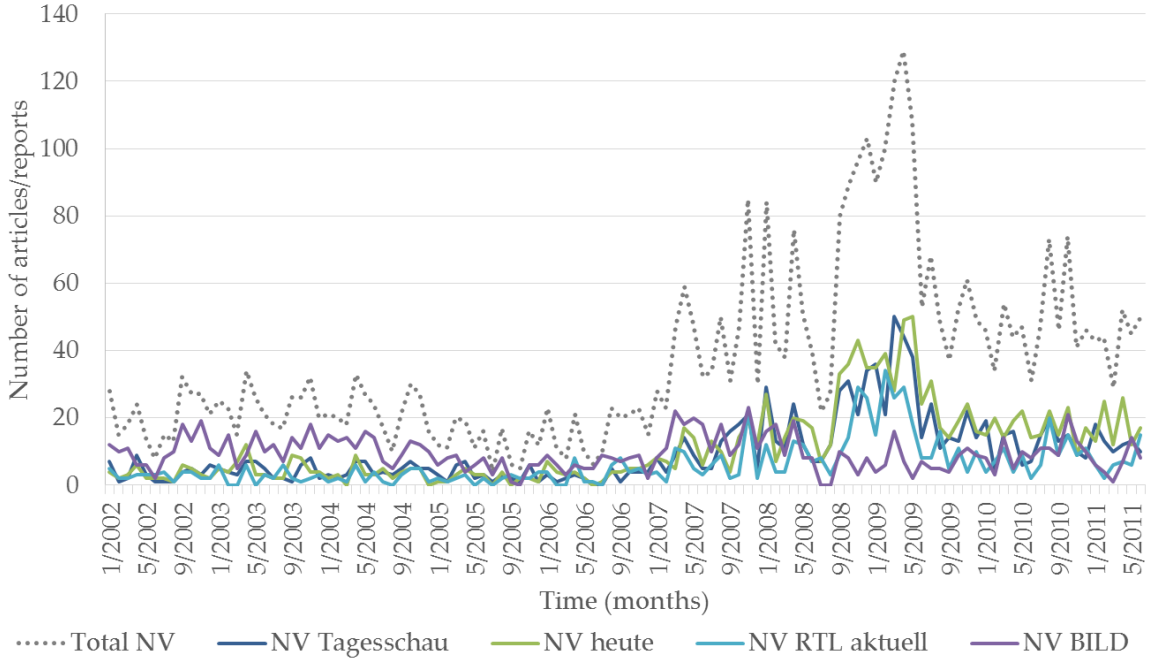


Figure 26: Media-based reality: News tone on employment, non-z-transformed data

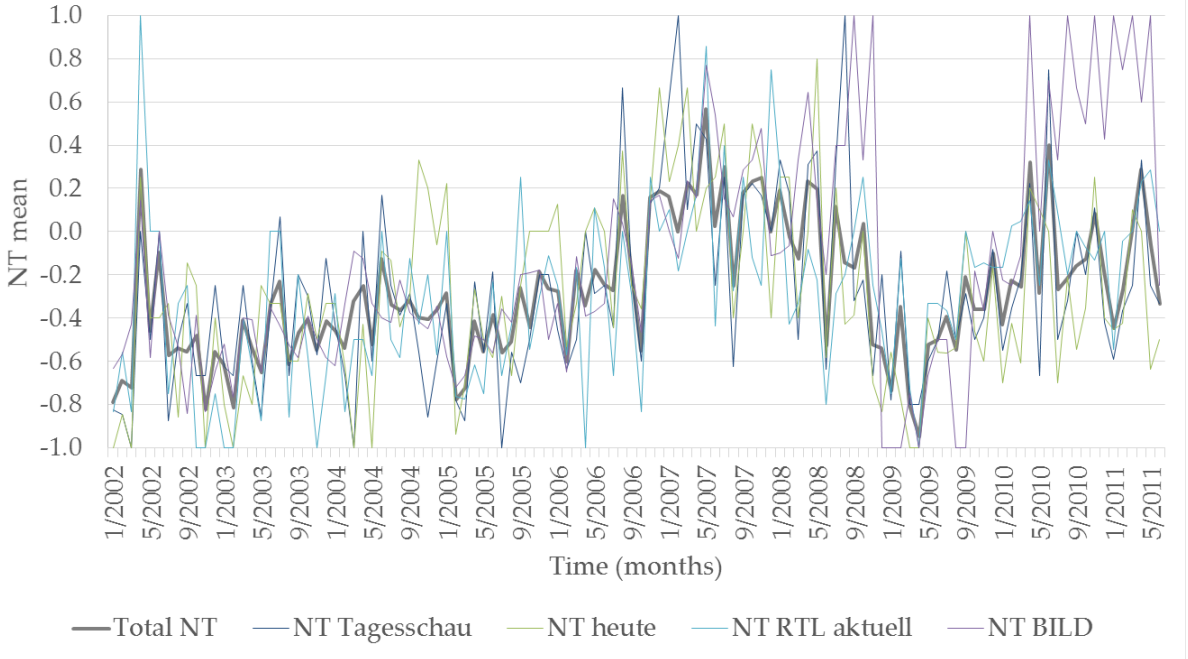


Figure 27: Media-based reality: News tone consonance on employment, non-z-transformed data

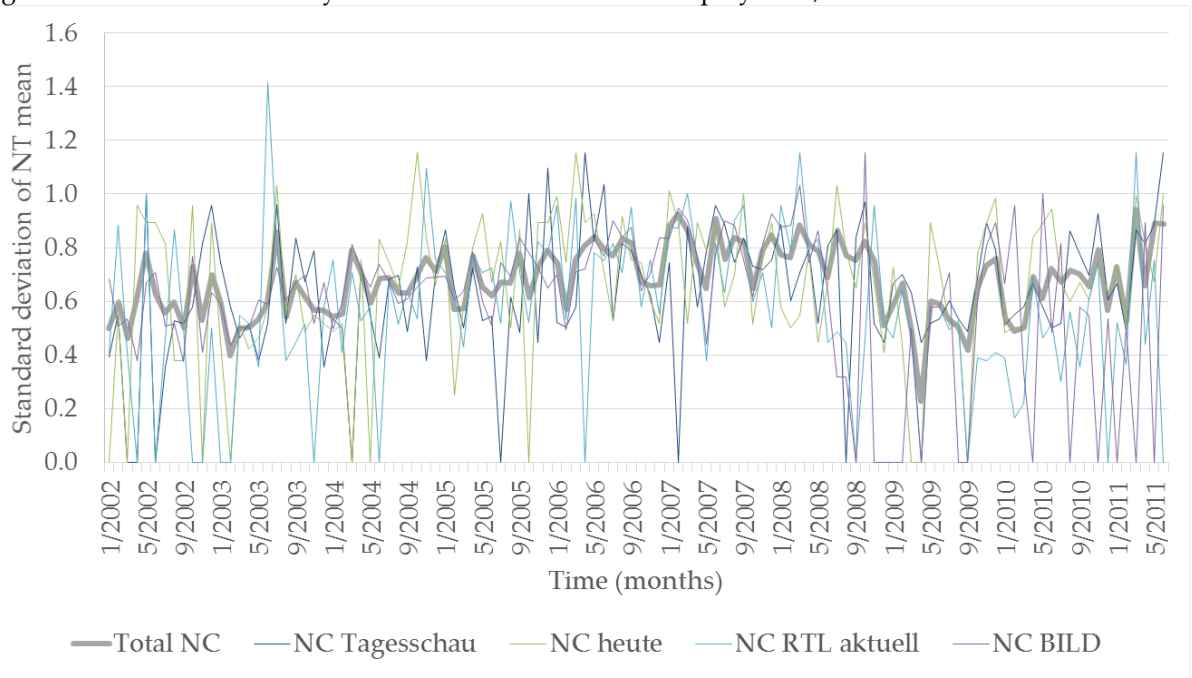


Figure 28: Media-based reality: News volume on employment, non-z-transformed data

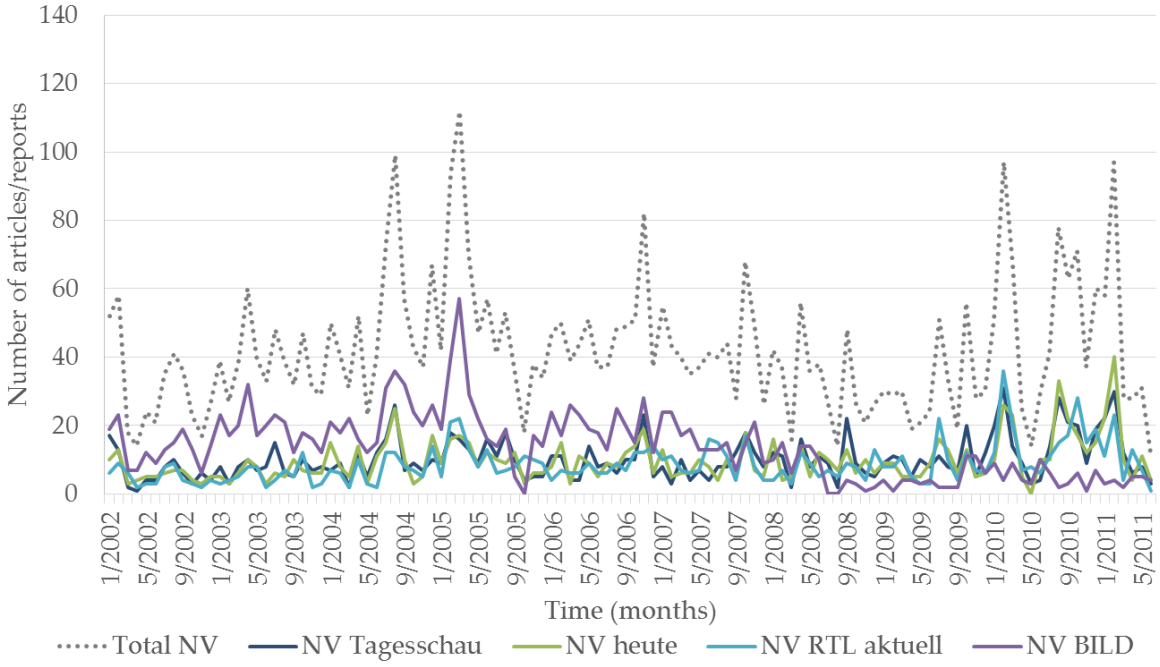


Figure 29: Social reality: Public economic sentiment measured by the EU Programme of Business and Consumer Surveys, non-z-transformed data

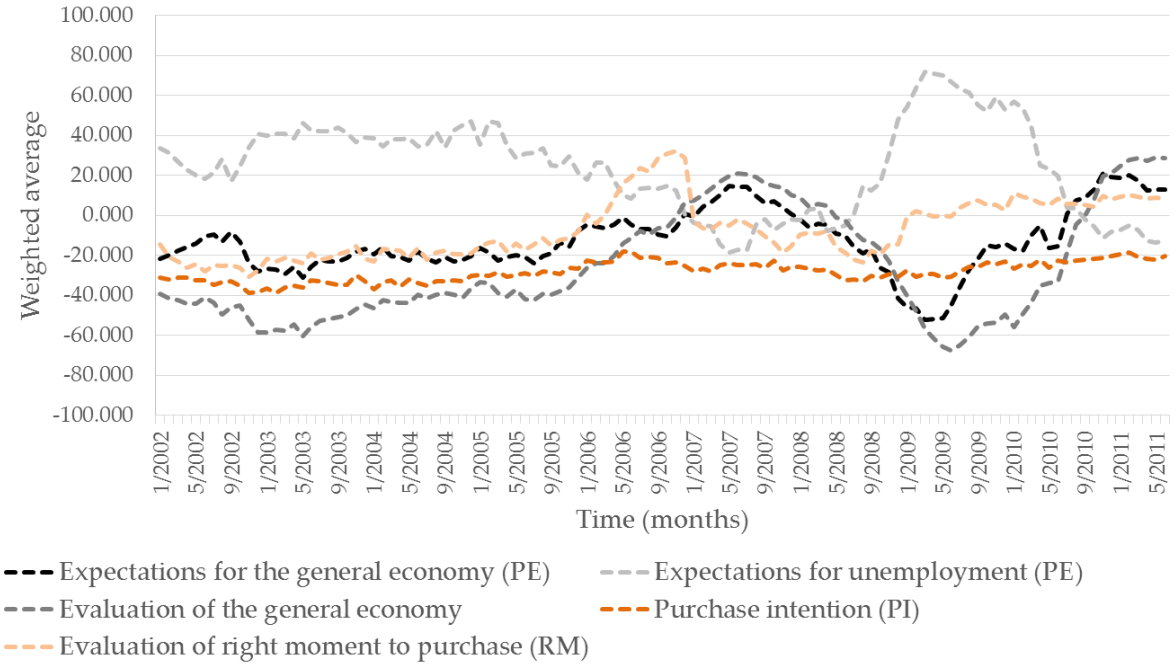


Figure 30: Social reality: Expert economic evaluations measured by the Ifo World Economic Survey, non-z-transformed data

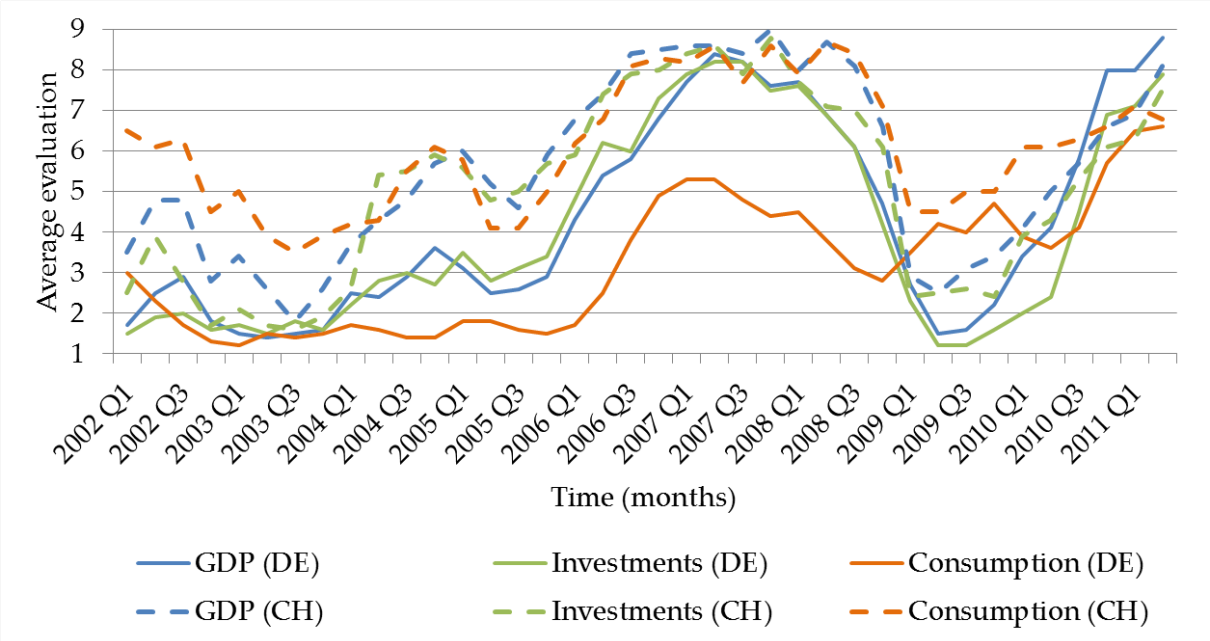
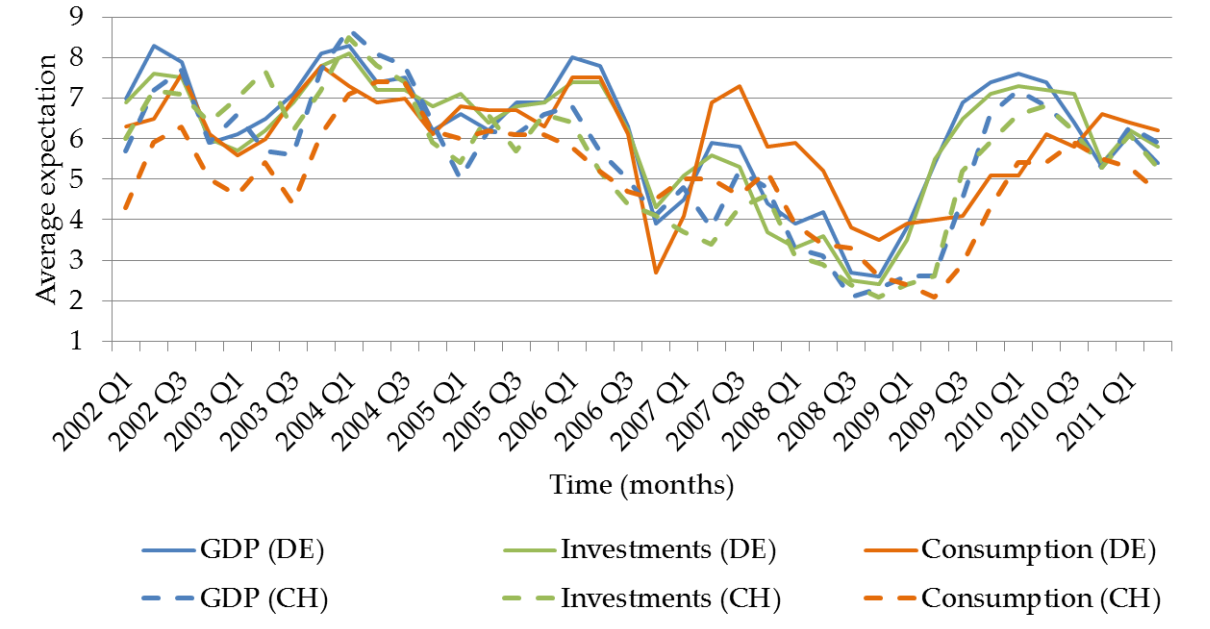


Figure 31: Social reality: Expert economic expectations measured by the Ifo World Economic Survey, non-z-transformed data



Articles

List of articles and declaration of co-authorship

1. Lischka, J. A. (2014). Different revenue incentives, different content?: Comparing economic news before and during the financial crisis in German public and commercial news outlets over time. *European Journal of Communication*, *29*(5), 1-18. doi:10.1177/0267323114538851

2. Lischka, J. A. (accepted). What follows what?: Relations between economic indicators, economic expectations of the public, and news on the general economy and unemployment in Germany, 2002–2011. *Journalism & Mass Communication Quarterly*.

   The letter of acceptance is printed in the following. he article is subject to a lock-up period.

3. Lischka, J. A., & Siegert, G. (2013). Beeinflussen Wirtschaftsnachrichten auch Wirtschaftserwartungen von Experten? Die Prognosequalität von öffentlich-rechtlichen und Service public Wirtschaftsnachrichten für Erwartungen von Wirtschaftsexperten in Deutschland und in der Schweiz. *Studies in Communication Sciences*, *13*(2), 174–184. doi:10.1016/j.scoms.2013.09.002

   All parts of this article were conceptualized and written by Juliane A. Lischka. Analysis was conceptualized and performed by Juliane A. Lischka. Gabriele Siegert was heading the corresponding research project and revised the article.

4. Lischka, J. A., Kienzler, S., & Mellmann, U. (2014). Sales drive advertising expenditures: Evidence for consumer packaged and durable goods in Germany. *International Journal of Marketing Studies*, *6*(1), 31–44. doi:10.5539/ijms.v6n1p31

   The literature review was conceptualized and written by Stephanie Kienzler. The analysis was conceptualized and performed by Juliane A. Lischka. The methods as well as results section were written by Juliane A. Lischka. The introduction, discussion and conclusion sections were written by Stephanie Kienzler and Juliane A. Lischka in equal parts. Ulrike Mellmann contributed to the research idea and considerably to data search and editing. Stephanie Kienzler and Juliane A. Lischka revised the complete article.

5. Lischka, J. A., & Seufert, W. (2014). Messung von Werbewirkungen auf Makroebene. In G. Siegert, W. Wirth, J. A. Lischka, & P. Weber (Eds.), *Handbuch Werbeforschung* (pp. in preparation). Wiesbaden: VS Verlag.

   Wolfgang Seufert conceptualized and wrote Section 3.1 of the chapter. All other sections were conceptualized and written by Juliane A. Lischka. Wolfgang Seufert and Juliane A. Lischka revised the complete chapter.
   he chapter is subject to a lock-up period.

The articles 1, , and 4, which are not subject to a lock-up period, are printed on the following pages in their accepted form.

Different revenue incentives, different content?

Comparing economic news before and during the financial crisis in German public and commercial news outlets over time

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University of Zurich, Switzerland

Abstract:

This study argues that revenue model incentives determine news content. The goal to make profits and the need to sell audiences to advertisers guide journalists' selection and interpretation of newsworthy material and result in commercialised news. We compare the volume, tone, and the obtrusiveness of topics in all economic news stories for the evening TV news of the public broadcasters *ARD* and *ZDF*, the commercial broadcaster *RTL*, and the tabloid newspaper *BILD* from 2002 to 2010 in Germany (n = 26,467). Results indicate that news selection Results indicate that news selection is guided by revenue model incentives since economic news differs by volume and topic between public and commercial outlets. News interpretation, i.e., news tone, stronger varies across the media types TV and print. We conclude that advertising income dependency and observation of competitor behavior transmits to operative journalistic practices and decisions, which in turn determine journalistic outcome.

Keywords: Business model, competition, content analysis, economics of media, financial journalism

1. Introduction

Economic goals of media organizations such as profit maximisation can impact journalistic orientation (Beam et al., 2009), programme (Hamilton, 2004), content (Shoemaker and Reese, 1996) and eventually, media performance. On a broader theoretic perspective, organizational goals frame operational practices and decisions within an organization (Kirchner, 2013). Translated to commercial media outlets, the need to sell target audiences to advertisers guides journalistic selection and interpretation and results in *news that's fit to sell* (Hamilton, 2004).

We claim that different revenue incentives cause differences within the content of public versus commercial news outlets. A structural bias in content can be caused by the public or commercial character of the medium (Hofstetter, 1976): Because of the economic goals related to their revenue models, public and commercial media outlets may react with different degrees of commercialized content to the competition for audiences.

In Germany's media system, public TV news have a strong standing. Commercial news outlets compete with the trusted and widely viewed public news. Competition between and among public and commercial media is accompanied by a need for differentiation of media outlets, increased importance of market orientation, and mutual observation of strategic behaviour (Heinrich, 2001b; Siegert and von Rimscha, 2013; Wehmeier, 2001). Germany's media market is considered to be well financed and one of the biggest markets worldwide in newspaper circulation, advertising income, number of journalists and news outlets (Esser and Brüggemann, 2010: 39, 44). Therefore, we consider German TV and newspaper media outlets as a good European case.

In contrast to studies analysing commercialized soft vs. non-commercialized hard news (see overview in Reinemann et al., 2012), this study focuses on commercialization of a *hard* news topic: economic news. In Germany as in other countries, the quantity of economic news coverage of newspapers and TV has

been increasing during the last two decades (Brettschneider, 2003; Maier et al., 2009; Marcinkowski and Marr, 2010; Quiring, 2004) and was exceptionally extensive during the global financial crisis in 2008-9 (Quiring and Weber, 2012; Manning, 2013; Krüger, 2013). Empirically, we compare volume, tone and obtrusiveness in *all* economic news stories from 2002 to 2010 in the public TV news shows *ARD Tagesschau* as well as *ZDF heute*, the commercial TV news show *RTL Aktuell* and the commercial tabloid newspaper *BILD* (n = 26,467). Therefore, this study links the organisational level of the news outlet with changes in journalistic outcome over time.

2. How revenue model incentives influence news content

2.1. The revenue model, audience preferences, and competition

Public and commercial media represent different revenue models and organizational goals. Public media are organized as non-profit organizations and serve as a source of diverse information providing high quality content that supports the development of public opinion (Hoffmann-Riem, 2003). Licence fees ensure information supply according to a programming mandate determined by constitutional law and legal frameworks. Public-service journalistic work is guided by information that audiences *need* to know to negotiate their world (Beam, 1996: 287). However, the constraint to produce content according to the audiences' *preferences* is lower for public than for commercial media (Heinrich, 2001a: 291).

In contrast, commercial media maximize profits and sell audiences to advertisers. Therefore, commercial news should aim to reach a maximum number of audience members advertisers are interested in. Hence, commercial news outlets adapt to the preferences of these target groups (Hamilton, 2004: 189) providing content that a target audience *wants*. This audience orientation 'shifts the focus away from the journalist's expertise and toward the reader's or viewer's informational interests' (Beam, 1996: 287) which results in market- or consumer-driven news reporting (Hamilton, 2004; Picard, 2006).

The consequential 'primary content of newspapers today is commercialized news and features designed to appeal to broad audiences, to entertain, to be cost effective and to maintain readers whose attention can be sold to advertisers' (Picard, 2004: 57).

The situation of a media organization affects the action of the journalist, which in turn determines journalistic outcome (e.g. Reinemann, 2007). Weaver et al. (2007: 94–5) report that the organisational goal to earn high profits is associated with a lower perceived information performance by journalists, i.e., how well their outlet performs in informing the public. Also when profits were more important than the production of good journalism the perceived information performance was lower. However, when the goal was to keep the size of the audience as large as possible, the perceived information performance was higher (Weaver et al., 2007: 95). In a European comparison, Aalberg et al. (2010) reveal that the amount of political information in TV programmes decreases with the amount of commercial channels. Moreover, Esser et al. (2012) find less political information on public channels that depend more heavily on advertising. However, when public TV has a stronger standing in a media system, public and commercial channels offer more news (Aalberg et al., 2010). Therefore, making profits and depending on advertising income decreases information supply. In contrast, public service goals increase information supply.

Competition and resources are crucial determinants of strategic product differentiation (Russi et al. 2014). To maintain the attention of their audiences, Vettehen et al. (2011) reveal that established news providers react on newcomers in the market who increase arousing news characteristics by also increasing arousing characteristics. However, public broadcasters increased fewer arousing news characteristics. Vettehen et al. (2005) point out that the dependency on advertising income of a media organization influences editing routines resulting in a less strong trend towards sensationalism compared to commercial news providers. Due to revenue incentives, the public broadcaster had a weaker need to 'join "the battle of the newscasts"' (Vettehen et al., 2005: 292). Hence, news outlets needing to sell audiences to advertisers select and edit news more strongly sensationalistic.

Consequently, news volume and characteristics vary according to revenue incentives of media organizations that differ according to the degree of competition for audiences in a media system.

2.2. The revenue model, journalistic roles, and news values

Different organizational goals and strategic orientations of public vs. commercial media might also affect how journalists understand their roles and tasks. Weaver et al. (2007) found that roles are partly correlated with the organizational context. If high profits are important to the organization and the organization put emphasis on informing, journalists are more likely to be disseminators.

Cross-national research has suggested that journalistic role conceptions influence news content (van Dalen et al., 2012; Patterson, 1998). Because different roles may affect the value public vs. commercial journalists ascribe to news. News values vary among different news outlets (Kepplinger and Ehmig, 2006; Schulz, 1976). Strömbäck et al. (2012) confirm that differences in journalistic goals exist among public and commercial broadcasters as well as tabloids. However, journalists of public and commercial broadcasters did not behave as expected in their study. The selection criterion, 'the event is dramatic and thrilling' was rated highest by journalists of public broadcasters followed by journalists of tabloids (Strömbäck et al., 2012: 724). In contrast, for journalists of commercial broadcasters it was most important that an event 'increases people's insights and knowledge' (Strömbäck et al., 2012: 724). For journalists of tabloids, it was more crucial to first cover an event than for public or commercial broadcasters and they put more emphasis on the availability of good pictures. These findings lead to the expectation that content differences between public and commercial news are to be found.

2.3. Hypotheses: The revenue model and news content

Various studies explore news frames differences across public and commercial outlets. A European comparison reveals that public broadcasters have a larger share of the more abstract thematic news frames than commercial broadcasters or tabloid newspapers (Brekken et al., 2010). The latter use

episodic frames that reduce the complexity of issues more often. For economic news, Kostadinova and Dimitrova (2012) found for Bulgaria that the frequency of thematic and economic consequence frames depends on the size of the audience, as they were more often used by specialised news outlets than news outlets for a general audience. Likewise, Doyle (2006) shows that economic news topics differ depending on the assumed economic literacy of the audience. While news for an economically literate audience covers a wide range of economic topics, including meta-aggregate level, news for a lay audience has a personal financial dimension such as house prices or interest rates, or a political angle.

A personal dimension in news topics can be defined as obtrusive. According to Demers et al. (1989: 789), a topic is obtrusive when 'people can have personal experience with an issue' or it relates to 'events in their daily life' (Lee, 2004: 152). We expect that commercial news outlets select news stories that are more obtrusive to their audience. Public news outlets should not have a preference for obtrusive news; rather their topics should be balanced according to real-world events:

H1: Economic news topics of commercial news are more often obtrusive than those of public news.

Not only topic, but also tone differences may exist between public and commercial news due to differences in perceived roles and different evaluations of objectivity. Godler and Reich (2013) state that ownership, among other factors, produce variance in journalists' takes on reality depiction. Hampton (2008) argues that the objectivity ideal emerged from Reuters and BBC but may be denied by commercial news outlets. Indeed, for journalists of tabloid newspapers, value judgments and subjectivity were clearly important in a Danish study (Skovsgaard et al., 2013). This study also reveals that role conceptions explain the implementation of the objectivity norm. Köcher (1986) found that British and German journalists see their roles as both providing analysis and interpretation of complex problems and getting news to the public quickly, neutrally and precisely. These were still the most important role perceptions of German journalists in 2005 (Weischenberg et al., 2012) and German newspapers business journalists in 2003 (Spachmann, 2005). However, no differences between public

and commercial journalists were analysed. Following Hampton (2008), interpretative or objective reporting may have higher or lower importance depending on the type of media outlet:

H2: Economic news tone of public news is more often neutral than the tone of commercial news.

2.4. Research question: Dynamics in news content during the financial crisis

News content characteristics differ not only across media but also over time. Major events can lead to changes in news content. Magee (2013) argues that the 9/11 terrorist attacks led to an increase in war, peace, and conflict stories within the flagship news magazine of the U.S. National Public Radio. The financial crisis may also represent an important international event leading to remarkable changes in economic news.

However, financial journalism has been criticized for its inability to alert the public about the financial crisis (Manning, 2013; Marron et al., 2010). For Germany, economic news is often characterized as negative and failing to show the complexity of the economy (Hagen, 2005). Bähr (2009) shows that negative or pessimistic descriptions of the crisis dominated in major German online news outlets.

Still, certain news outlets may be first movers in changes in economic news tone or volume during the financial crisis. Strömbäck et al. (2012) has shown that journalists of tabloids consider it most important to first cover an event. Lagging changes among news outlets can be explained with mutual observation leading to intermedia agenda setting (Roberts and McCombs, 1994; Vliegenthart and Walgrave, 2008). The temporality may run from high to lower status news organizations or between media types, e.g. from print to TV (Roberts and McCombs, 1994). Most frequent strategic intermedia responses to competitor's news are to follow or upgrade own news (Lim, 2011). That is, volume or tone in economic news may change with one news outlet prior to another. Therefore, we ask the research question:

RQ1: How did volume and tone in economic news change during the financial crisis among public and commercial news outlets?

3. Case of Germany

The German media system consists of the non-profit public broadcasters *ARD* and *ZDF* that are mainly financed by licence fees (since January 2013 by an excise duty per household) adding up to more than 80 per cent of revenues (Esser et al., 2012) as well as commercial broadcasters and newspapers that are fully financed through advertising, sponsorship and the like and/or retail price. The German public broadcasting is one of the most expensive systems relating licence fees to production costs (Potschka, 2011: 117).

In Germany, TV and daily newspapers are the most important sources for current affairs for the public (Ecke, 2011: 19). With regard to reach or circulation, the main TV and newspaper news sources in Germany were selected for this study. These are the public flagship news shows *ARD Tagesschau* and *ZDF heute*, the commercial news show *RTL Aktuell* and the tabloid newspaper *BILD*. While the reach of *ZDF heute* declined from 2002 to 2010, it remained quite stable for *ARD Tagesschau* and the commercial counterpart (see Table 1). The tabloid newspaper faced declining circulation from four to about three million copies. Other German newspapers or magazines have a far lower circulation and therefore are not included.

In the public (commercial) service news shows, 70 (40) per cent of the content is used for political and economic news (Marcinkowski and Marr, 2010: 489). Although *BILD* is not specialised in economic news as a 'prototypical representative of tabloid journalism' (Klein, 1998: 79), its news influences economic judgments of the public (Hagen, 2005).

Workforce differs strongly across the news outlets. About 145 journalists and editors work cross-channel for *ARD-aktuell*, the editorial department for 20 daily *Tagesschau* editions, the online news outlet *tagesschau.de*, the news channel *tagesschau24*, the late night news *Nachtmagazin* and the weekly

news show *Wochenspiegel* (Gniffke, 2013). About 10 to 15 journalists and editors work for *ZDF heute* (ZDF, 2012) and 15 for *RTL Aktuell* (RTL interactive GmbH, 2013). For *BILD*, a network of 883 journalists and editors produce content for 25 daily regional and local editions (bild.de, 2012).

Table 1. Reach/circulation per news outlet

News outlet	*ARD Tagesschau*	*ZDF heute*	*RTL Aktuell*	*BILD*
	Public evening news	Public evening news	Commercial evening news	Tabloid, commercial daily newspaper
Reach/circulation				
in 2002	9.62m	5.17m	3.89m	4.05m
in 2010	9.14m	3.97m	3.91m	2.94m

Note. News show reach taken from Zubayr and Gerhard (2005; 2012). Circulation of *BILD* refers to quarter 4 of each year from Monday to Friday and is retrieved from IVW (2013).

4. Data

This study compares news topics, tone and volume on the economy of the four daily news outlets with the highest reach/circulation in Germany. News topics, tone, and volume data for economic news in the observation period from 2002-10 are provided by the research company Media Tenor. The coding was done on original print copy and broadcasting by professionally-trained full-time coders. Intercoder reliability continuously reaches 87 per cent at least (Media Tenor, 2012). Units of analysis are every print article and every report on politics or the economy in text or picture. Since there is a strong political dimension to economic reporting (Doyle, 2006: 444) and politics and the economy are interwoven, especially during the financial crisis when many governmental interventions were made

(Quiring and Weber, 2012; Sommer, 2013), it is necessary to include economic-political news stories. In the newspaper *BILD*, the first three pages were the basis for coding since these pages comprise political and economic topics. All reports in TV news were subject to coding (except for the weather forecast). Qualifying criteria for further coding were economic topics, recent German domestic politics, German foreign affairs, and reports on the European Union or its institutions. The number of coded news stories is 7'289 (*ARD Tagesschau*), 7'311 (*ZDF heute*), 4'559 (*RTL Aktuell*), and 7'308 (*BILD*) summing up to a total of 26'467.

All qualified articles and reports obtained a news tone measure, which represents journalists' interpretation. News tone was coded positive (1), neutral (0), or negative (-1). Only predominantly judgmental statements or descriptions of actors or situations by journalists, concerned persons or parties, adversaries or independent actors such as politicians, business people, or scientists lead to a positive or negative news tone coding. News tone was coded as positive when explicitly positive terms were mentioned, such as *good, excellent,* or *promising* or the topic was embedded in an implicitly positive context, such as *decreasing unemployment figures* or *company profits*. If no predominant explicitly or implicitly positive *or* negative tendencies were identifiable, the article or report was coded as neutral.

News topics are a result of jouranlists' selection and comprise state/context/location (e.g. economic policy, national debt, laws, taxes, infrastructure, foreign direct investments), employment, the general economy, consumer/business sentiment, productivity/costs of labour, prices/inflation, GNP/GDP, external trade, currency, order entries, income, and an 'other' category (see Appendix). Some of these economic topics can be directly encountered by the audience, i.e. are obtrusive to the audience (Lee, 2004; Demers et al., 1989), such as employment, labour market, prices and inflation, consumer sentiment, income, and currency. Such topics might have a higher relevance for viewers and provide more practical relevance than other economic information.

The observation period from 2002 to 2010 starts after the global dotcom crisis in 2000 with slower economic growth, a minor recession in 2003/4 followed by a growth period until 2008, regarding the German GDP. It includes the subprime mortgage crisis at the end of 2006, merging into the financial banking crisis in late 2007, leading to negative global economic developments in 2008-9 and the international debt crisis (Bussière et al., 2013). For the analysis, we compare the pre-financial-crisis period from 2002-06 and the financial-crisis period from 2007-10.

5. Results

5.1. Changes in economic news volume and tone during the financial crisis

Within this section we compare the development of news volume and tone for the news outlets *Tagesschau*, *heute*, *RTL Aktuell* and *BILD* by year from 2002-10 to answer RQ1. Figure 1 shows the absolute volume of economic news per year as well as the average news tone and its standard deviations. Figure 2Figure 1. Development of volume (bars) and tone (dots with Stdev.) of economic news

displays the development of standard deviations of news tone average per year. Additionally, Table 3 compares the average news tone of all four news outlets per year, revealing significant differences.

Tagesschau and *heute* show a very similar reporting quantity and news tone in economic news throughout the years (Figure 1). Both public news outlets double their volume of reports in 2008-10 compared to earlier years. This indicates that journalistic selection processes changed for *Tagesschau* and *heute*. The public news tone is negative on average, with an exception in 2006/7 when an economic upturn occurred in Germany. In these years, the standard deviation of news tone also increased, indicating a broader journalistic interpretation range (Figure 1).

The commercial news outlet *RTL Aktuell* steadily increased its volume of reports throughout the observation period (Figure 1). In total, *RTL Aktuell's* news volume is lower compared to the public news.

However, the news volume follows the increasing pattern of the public news outlets. The decrease in the development of the standard deviation in news tone of *RTL Aktuell* from 2007 onwards is remarkable (Figure 1). The tone varies less strongly than public news outlets or *BILD*. Journalistic interpretation is narrower and retains a slightly negative tone from 2007 onwards. Therefore, *RTL Aktuell* can be regarded as a news outlet putting reasonable emphasis on economic information, but it does not get close to the information quantity and tone variety of public news outlets.

Despite being a boulevard newspaper, *BILD* has a higher news volume in economic news until 2007 compared to all other news outlets (Figure 1, Table 3). However, three pages in a newspaper may fit more articles than stories appearing in a 15-minutes news show. In 2008, a sudden decrease in *BILD* articles occurs. Hence, journalistic selection processes changed during the time of the financial crisis. Also, interpretation processes differ from other news outlets. *BILD's* news tone increases from 2007 onwards and is significantly more positive compared to other news outlets in 2007, 2008, and 2010 (Table 3). However, the standard deviation increases during the time of the financial crisis and is larger than the standard deviation of other news outlets (Figure 1), indicating a broader range of journalistic interpretation of economic topics.

Additionally, a vector autoregressive (VAR) model can test which news outlet is a first mover when it comes to changes in volume and tone. In a VAR model, the past of a variable is included to measure an impact on the current status of another variable. Therefore, VAR modelling allows dynamic and interdependent analyses between intervening variables of different time lags (Sims, 1980). A VAR model for the news of different news outlets ($N1$, $N2$, $N3$, $N4$) including p time lags can be written

$$N1_t = \alpha + \beta_1 N1_{t\text{-}1} + \ldots + \beta_p N1_{t\text{-}p} + \sigma_1 N2_{t\text{-}1} + \ldots + \sigma_p N2_{t\text{-}p} + \varsigma_1 N3_{t\text{-}1} + \ldots + \varsigma_p N3_{t\text{-}p} + \lambda_1 N4_{t\text{-}1} \ldots + \lambda_p N4_{t\text{-}p} + \varepsilon_t$$

where α and ε are the constant and error terms , and β, σ, ς, and λ are the coefficients. One VAR model was estimated for news volume and one for news tone, both for the time period 2007-10 on monthly data frequency. Results are illustrated in Figure 3. The public news outlets *Tagesschau* and *heute* are first

movers in volume changes during the time of the financial crisis. *BILD* tends to react with a decrease on an increase in economic news volume of *Tagesschau* (dashed arrow). *RTL Aktuell* follows changes in news volume according to *heute*. *BILD*, however, changes its news tone prior to *Tagesschau*. Also *heute* tends to precede *Tagesschau* in news tone changes. Therefore, journalistic selection and interpretation processes did not change instantly among all news outlets at the same time. But public news outlets react quickly to changing real-world conditions by increasing news volume. *BILD* is the first outlet to react by adapting news tone.

Figure 1. Development of volume (bars) and tone (dots with Stdev.) of economic news

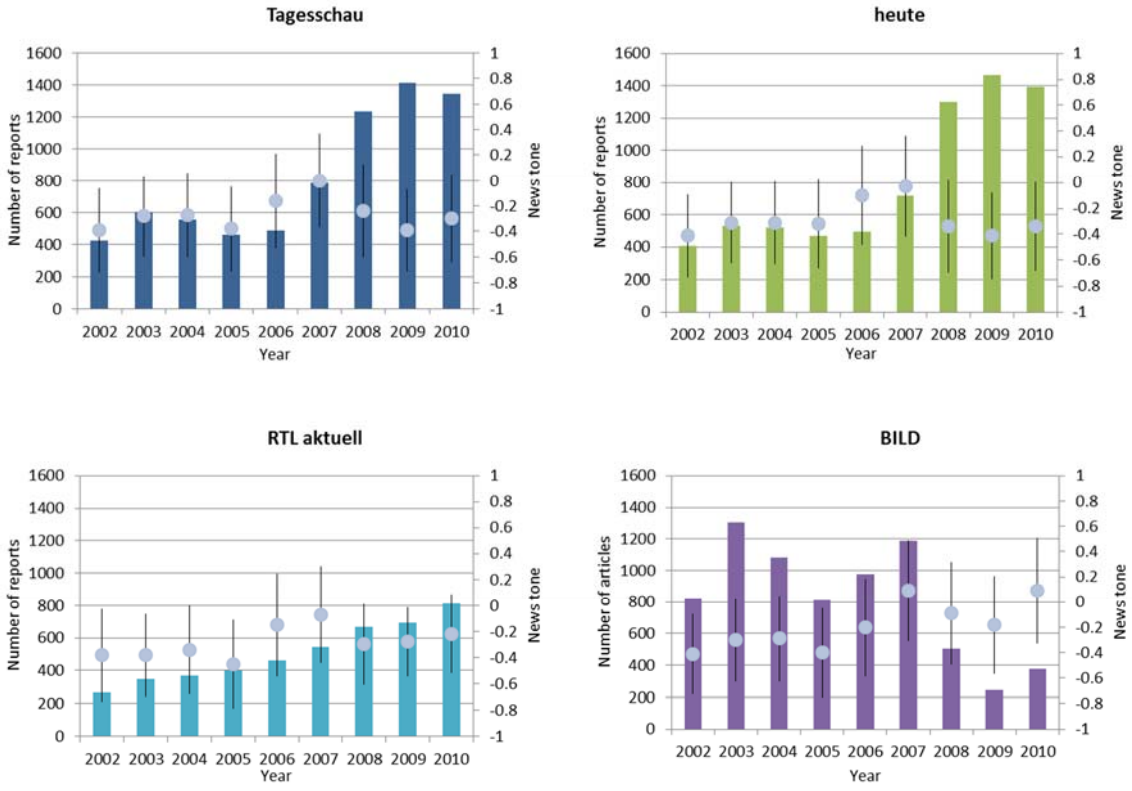


Figure 2. Standard deviation development of economic news tone average

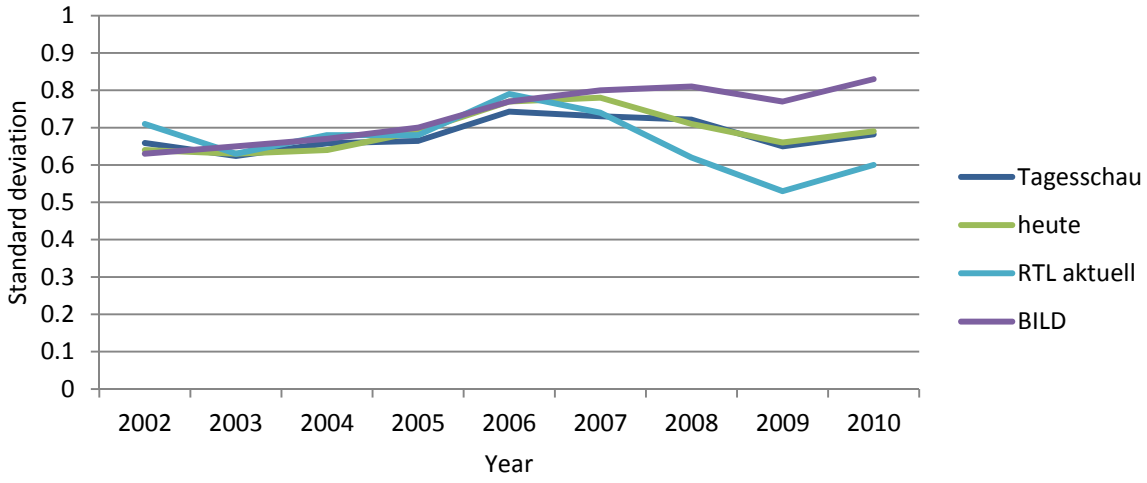
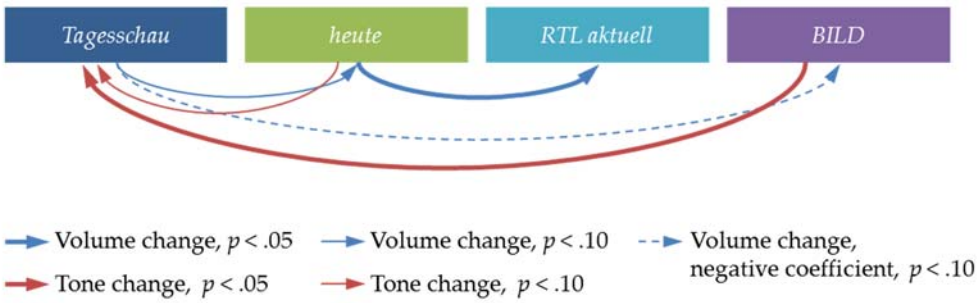


Figure 3. Preceding volume and tone changes in economic news, 2007-2010



5.2. Emphasis on obtrusive topics

In Table 2, we evaluate the relative shares of each topic compared to the total economic news of each news outlet to test H1. In the 2002–2006 period, no clear differences between the volumes of obtrusive topics can be found among news outlets. News on the state/context/location comprise about half of the total economic news. This category also contains political aspects, which public broadcasters more frequently emphasise. About one-fifth to one-quarter in economic news deals with the obtrusive topic of employment. Against expectations, the tabloid *BILD* reports more often about the general economy—which is a rather abstract and unobtrusive topic—than other news outlets. Prices and

inflation as well as income and currency are less frequently reported obtrusive topics among all news outlets.

Overall, in the 2007–2010 period, the topic state/context/location remains the most important one. However, public news reports significantly more often about this unobtrusive topic than commercial news. The general economy covers up to one-fifth in economic news. This unobtrusive topic is more often a news topic in *BILD* and *heute* than in *Tagesschau*. In favour of news on the general economy, the volume of news on the obtrusive topic of employment decreased in the public news. In line with expectations, the obtrusive topics of employment and consumer and business sentiment, as well as prices and inflation, are significantly more often part of commercial than of public news. Against expectations, however, the unobtrusive topics of external trade and GNP/GDP are more often covered in commercial news. Because fewer than three out of 100 reports deal with these unobtrusive topics, this result is negligible.

From 2007 onwards, obtrusive topics add up to a greater share within commercial news compared to public news which is in line with our expectations. Therefore, we partly accept H1.

Table 2. Obtrusive and unobtrusive economic news topics across news outlets

	Tagesschau(A)		*heute* (B)		*RTL Aktuell* (C)		*BILD* (D)	
Topics	n	%	n	%	n	%	n	%
	2002-06							
State/context/ location	1'438	57.2[CD]	1'362	56.0[CD]	887	48.2	2'562	51.3
Employment	544	21.6	520	21.4	441	24.0	1'152	23.1
General economy	195	7.8	200	8.2	150	8.2	522	10.5[ABC]

Consumer/business sentiment	82	3.3	103	4.2	136	7.4[ABD]	193	3.9
Productivity/ labour costs	77	3.1[D]	53	2.2	33	1.8	97	1.9
Prices/inflation	47	1.9	44	1.8	31	1.7	138	2.8
GNP/GDP	19	0.8	12	0.5	9	0.5	22	0.4
External trade	13	0.5	16	0.7	6	0.3	38	0.8
Income	2	0.1	0	0.0	10	0.5[A]	12	0.2
Order entries	2	0.1	4	0.2	6	0.3	11	0.2
Currency	2	0.1	7	0.3	5	0.3	6	0.1
Other	93	3.7	111	4.6	126	6.8[ABD]	242	4.8
Total	2'514	100.0	2'432	100.0	1'840	100.0	4'995	100.0
				2007-10				
State/context/ location	2'788	58.4[BCD]	2'667	54.7[CD]	1'239	45.6[D]	823	35.6
General economy	794	16.6	937	19.2[A]	493	18.1	456	19.7[A]
Employment	523	11.0	489	10.0	496	18.2[AB]	387	16.7[AB]
Consumer/business sentiment	107	2.2	140	2.9	127	4.7[AB]	88	3.8[A]
Productivity/ labour costs	103	2.2	116	2.4	44	1.6	57	2.5
Prices/inflation	89	1.9	133	2.7[A]	133	4.9[AB]	160	6.9[ABC]
Currency	28	0.6	24	0.5	11	0.4	81	3.5[ABC]
External trade	20	0.4	30	0.6	15	0.6	72	3.1[ABC]

GNP/GDP	11	0.2	13	0.3	17	0.6[A]	39	1.7[ABC]
Order entries	10	0.2	13	0.3	2	0.1	6	0.3
Income	1	0.0	10	0.2[A]	5	0.2	4	0.2
Other	301	6.30	307	6.30	137	5.00	140	6.10
Total	4'775	100.0	4'879	100.0	2'719	100.0	2'313	100.0

Note. A, B, C, and D indicate statistically significant differences of percentages between columns ($p < .05$, two-sided Z-test, Bonferroni corrected).

Obtrusive topics are marked in grey.

5.3. News tone neutrality

Table 3 displays the average news tone for the four news outlets per year from 2002-10 to test H2. For all news outlets, the news tone is negative until 2005, and increases to neutral until 2007 in parallel with an economic upswing. Afterwards, the public as well as the commercial TV news tone decreases. The tone of the tabloid remains neutral to positive, against expectations. No systematic significant differences can be detected between public and commercial news outlets. Therefore, we dismiss H2.

Table 3. News tone and share of economic news across news outlets

	Tagesschau (A)			*heute* (B)			*RTL Aktuell* (C)			*BILD* (D)		
Year	Mean	Stdev.	%	Mean	Stdev.	%	Mean	Stdev.	%	Mean	Stdev.	%
2002	-0.39	0.66	22.0	-0.41	0.64	21.3	-0.38	0.71	13.8	-0.41	0.63	42.9^{ABC}
2003	-0.28	0.62	21.5	-0.31	0.63	19.2	-0.38	0.63	12.5	-0.30	0.65	46.8^{ABC}
2004	-0.27	0.66	21.9	-0.31	0.64	20.7	-0.34	0.68	14.6	-0.29	0.67	42.8^{ABC}
2005	-0.38	0.66	21.4	-0.32^{C}	0.69	22.0	-0.45	0.68	18.7^{AB}	-0.40	0.70	37.9^{ABC}
2006	-0.16	0.74	20.0	-0.10	0.77	20.6	-0.15	0.79	19.0^{AB}	-0.20	0.77	40.4^{ABC}
2007	0.00	0.73	24.2	-0.03	0.78	22.2	-0.07	0.74	16.8^{B}	0.09^{ABC}	0.80	36.8^{ABC}
2008	-0.24	0.72	33.3^{CD}	-0.34	0.71	35.1^{CD}	-0.30	0.62	18.0^{D}	-0.09^{ABC}	0.81	13.6
2009	-0.39	0.65	37.0^{CD}	-0.41	0.66	38.4^{CD}	-0.28^{AB}	0.53	18.2^{D}	-0.18^{AB}	0.77	6.4
2010	-0.30	0.68	34.2^{D}	-0.34	0.69	35.5^{D}	-0.22^{AB}	0.60	20.7^{D}	0.09^{ABC}	0.83	9.6

Note. A, B, C, and D indicate statistically significant differences of means between columns ($p < .05$, two-sided *T*-test, Bonferroni corrected) and differences of percentages between columns ($p < .05$, two-sided *Z*-test, Bonferroni corrected)

6. Discussion

This study compares topics, volume and tone in economic news for TV news of two public and a commercial broadcaster and a tabloid newspaper from 2002 to 2010 in Germany. It links two dimensions: the organisational level with dynamic changes over time. Results show that also within hard news, commercial news outlets provide topics that are closer related to the everyday life of consumers especially during the financial crisis. Considerable news differences are found between media types. During the financial crisis, both news tone and volume differed clearly between the

tabloid newspaper and the TV shows. However, some differences can be ascribed to the revenue model incentives. Overall, results confirm a structural bias according to Hofstetter (1976) caused by the character of the news outlets.

Despite different editorial organisations and numbers of staff, economic news of the public broadcasters was very similar. Against expectations, public news tone is not found to be more neutral than commercial news tone. Rather, a negative tone seems to be standard in economic news throughout the TV news outlets, which is in line with previous research for Germany (Brettschneider, 2003). Before 2007, all news outlets interpreted economic news in a similar range. From 2007 onwards, *BILD's* interpretation varied most broadly and *RTL aktuell's* least broadly. Although the *ARD Tagesschau* sets the intermedia agenda (Weischenberg et al., 1994) and therefore should be a first mover, the tabloid news was the first that changed its news tone in the crisis years, according to the higher importance for tabloid journalists to be a first mover (Strömbäck et al., 2012).

Economic news topics of different news outlets are not fundamentally different from each other during 2002 to 2006, but differ among news outlets from 2007 onwards. Economic news topics for the commercial broadcaster and the tabloid tend to be more obtrusive, i.e. related to the everyday life of consumers from 2007 onwards. This indicates that commercial news outlets emphasise delivering *news that's fit to sell* (Hamilton, 2004) especially during the financial crisis. As the main information source of the public for the financial crisis was TV news (Quiring and Weber, 2012), competition for audiences may have increased among news outlets. We conclude that orientation to the needs of a general lay audience was more important to commercial than to public media.

In line with Strömbäck et al. (2012), the dramatic event of the financial crisis lead to a strong increase in economic news volume of public broadcasters—whereas the commercial broadcaster increased news volume only moderately, and the tabloid decreased news volume. Aalberg et al. (2010) showed that

countries where public news has a strong standing supply more news. Our study reveals that public channels are pioneers in news volume increase and the commercial news show follows their increase.

RTL Aktuell's constant increase in economic news volume can be regarded as a strategy providing as much information as necessary to compete with public news for lay audiences. *RTL Aktuell's* reach was close to and partly exceeding the reach of *heute* from 2007-10 (Zubayr and Gerhard, 2011).

In conclusion, the revenue model and its economic goals and incentives as well as competitor behaviour determine the journalistic selection processes and ultimately news content. In economic news, the analysed news outlets produce a greater variety of news topics and volume compared to news tone across public and commercial news outlets. That is, selection processes seem to be more strongly determined by the revenue model incentives than interpretation processes. Competitor monitoring and the need to successfully compete for audiences may have supported news volume and topic variety, as increased competition suggests (Wehmeier, 2001).

However, the focus of this study on organizational influences might fall short since news content is also affected by individual, procedural, organizational, and structural influences which are highly interconnected (Hanitzsch et al., 2010; Shoemaker and Reese, 1996). Differing target audiences and journalistic roles, and news values serve as a key tie between organizational influences and news making. Limitations of the results are the missing knowledge about the actual journalistic roles, news values and the actual assumptions and consideration of audience preferences of journalists. Although individual, procedural, and organizational influences can well explain content variation, the separate influence of each influence factor cannot be estimated. Also, the comparison of different media categories, TV and print, may be misleading. Being a tabloid newspaper, *BILD* might not compete directly with TV evening news, as the taboid is used in the morning or during the day. However, as the commercial newspaper with the highest circulation in Germany, insights into *BILD* news are valuable.

The content analysis covering eight years of all economic news stories of the four major German news outlets allows a valid picture on journalistic outcome as the result of journalistic selection and interpretation. Given that the need to sell target audiences to advertisers guides content production, this study reveals that dependency on advertising income is reflected in news content of public versus commercial news outlets. The major event of the financial crisis served as a disruptive incident leading to changes in journalistic selection and interpretation while taking the market leader's behaviour into account. Hence, advertising income dependency and observation of competitor behaviour transmits to operative journalistic practices and decisions, which in turn determine journalistic outcome.

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Appendix

Table A1. Detailed content of topic categories

Topics	Details
State/context/location	Economic policy, national debt, laws, orders, bureaucracy, general ability to compete, employment protection, environmental specifications, protection against dismissal, business tax, income tax, value added tax, subsidies, tariff policy, infrastructure, foreign direct investments

Employment	Employment, unemployment, occupation, apprenticeships, labour force participation rate, professional education system, qualification of the population
General economy	General economic situation, economic growth
Consumer/business sentiment	public opinion on the economic situation, consumer sentiment, business climate, future prospects, investment plans
Productivity/labour costs	Labour costs, ancillary labour costs, productivity
Prices/inflation	Price indices, inflation, applied interest rate
GNP/GDP	National income, GDP, GNP
External trade	Orders, foreign demand
Income	Income, per capita income
Order entries	Orders, domestic demand
Currency	EURO exchange rate, Deutsche Mark exchange rate
Other	Bankruptcies, start-ups, investments, innovations, other

Obtrusive topics are marked in grey.

Beeinflussen Wirtschaftsnachrichten auch Wirtschaftserwartungen von Experten?

Die Prognosequalität von öffentlich-rechtlichen und Service public Wirtschaftsnachrichten für Erwartungen von Wirtschaftsexperten in Deutschland und in der Schweiz[1]

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[1] Dieser Beitrag entstand im Rahmen des durch den Schweizer Nationalfonds geförderten Projekts 'Der Einfluss von Wirtschaftsberichterstattung auf unternehmerische Wirtschaftserwartungen und Werbeinvestitionen in der Schweiz und Deutschland'. Wir danken den anonymen Reviewern für hilfreiche Hinweise.

Abstract

Economic news may not only report about the economy but also impact the development of an economy by affecting economic expectations. This study explores the impact of economic news on the economic expectations of experts. A content analysis of economic news tone and volume of two German and one Swiss public service news shows is combined with survey data on macroeconomic expectations of experts on the topics of general economy, capital expenditures, and private consumption. Results confirm that past news tone explains economic expectations on private consumption up to 70 per cent. This effect varies among news shows and the overall economic situation. The authors hold media dependency and an asymmetric third-person effect responsible for these variations.

Keywords: economic news; third-person effect; public service broadcasting; TV news; economic expectation; Granger causality

1 Einleitung

Die Wirtschaftsberichterstattung kann sich auf die reale Wirtschaftsentwicklung auswirken, wenn Erwartungen zur Wirtschaftsentwicklung vom Tenor der Wirtschaftsnachrichten gefärbt sind. Wirtschaftsakteure agieren nicht losgelöst von Umwelteinflüssen, sondern sind über vielfältige Wechselbeziehungen mit ihren Umwelten verbunden. Medien sind Teil dieser Umwelt und nehmen als Teilsystem der Gesellschaft eine Mittlerrolle ein. Einerseits können Wirtschaftsakteure, wie z.B. Unternehmen, über die Medienberichterstattung Informationen an die Öffentlichkeit tragen, andererseits können sie Informationen aus der Berichterstattung filtern, um sich ein Bild über marktspezifische Gegebenheiten zu machen. Denn „In einer Zeit, in welcher der Markt durch ein riesiges Netzwerk der ökonomischen Kommunikation überspannt wird, sind Wechselwirkungen zwischen Kommunikations- und Wirtschaftskonjunktur an der Tagesordnung. Wie sich die Wirtschaftskonjunktur entwickelt, hängt davon ab, wie über die Konjunktur gesprochen wird“ Münch (1991, S. 130). Das bedeutet zugleich, dass sich die Erwartungen der Wirtschaftsakteure massgeblich auf die Medienberichterstattung beziehen. Zudem gelten das Verbraucher- sowie Unternehmervertrauen und Expertenerwartungen als vorlaufende Indikatoren für die reale Wirtschaftsentwicklung (Kater, 2008).

Die Bedeutung der Wirtschaftsberichterstattung für Wirtschaftserwartungen von Wirtschaftsexperten wurde jedoch bislang zu wenig erforscht. Die vorliegende Untersuchung soll diese Forschungslücke schliessen helfen und beantwortet die Forschungsfrage, inwieweit sich Wirtschaftsberichterstattung auf Wirtschaftserwartungen von Experten auswirkt.

Im Gegensatz zu unbeteiligten Beobachtern der Wirtschaftslage haben Wirtschaftsexperten durch ihr berufliches Handeln und ihre Expertise eine erhöhte Wahrscheinlichkeit zum Gegenstand der Medienberichterstattung werden. Gleichzeitig kann Medienberichterstattung ihre ökonomischen Entscheidungen und Erwartungen färben. Wirtschaftsexperten können ihre professionelle Erfahrung und ihre Umweltbeobachtung zu übergreifenden Erwartungen bündeln, wobei zugleich das Verhalten aller Marktteilnehmer antizipiert werden muss. Demnach sollten Experten im Gegensatz zu Unternehmensentscheidern weniger durch die aktuelle Lage eines individuellen Unternehmens geprägt sein, sondern vergleichsweise objektiv die allgemeine Wirtschaftslage einbeziehen und entsprechend abstrahierende Wirtschaftserwartungen ausprägen. Damit stellen Expertenmeinungen einen Sonderfall für die Wirkung von Wirtschaftsberichterstattung dar.

Für die Studie werden die Tonalität und das Volumen der Wirtschaftsnachrichten am Beispiel der öffentlich-rechtlichen sowie Service public Hauptnachrichten in Deutschland bzw. der Schweiz mit Expertenmeinungen zur derzeitigen und zukünftigen Wirtschaftslage zeitreihenanalytisch anhand von vektorautoregressiven Modellen (VAR) und Granger Kausalität untersucht.

Der Beitrag ist wie folgt aufgebaut. Zunächst beschreiben wir den Forschungsstand zur Rolle von Erwartungen für Wirtschaftsentscheidungen und die Wirtschaftslage (2.1) sowie die Rolle der Berichterstattung für die Erwartungsbildung (2.2). Am Beispiel der Forschung zum Thema Finanzmarkt lässt sich die Vermutung teilweise bestätigen, dass Erwartungen von Medienberichten geprägt sind und diese Erwartungen Investitionsentscheidungen beeinflussen. Aus dem Stand der Forschung werden anschliessend Forschungsfragen abgeleitet (3). Daten und Analysemethoden werden in Abschnitt 4 und die Ergebnisse in Abschnitt 5 beschrieben. Abschliessend werden die Ergebnisse diskutiert und kritisch hinterfragt sowie Vorschläge für Anschlussforschung formuliert.

2 Forschungsstand

2.1 Relevanz: Die Rolle von Erwartungen für Wirtschaftsentscheidungen und Wirtschaftslage

Neben dem Leitzins, den Auftragseingängen seitens der Unternehmen oder dem Verbrauchervertrauen[2] stellen das Unternehmervertrauen, gemessen z.B. mit dem ifo Geschäftsklimaindex, und die Wirtschaftserwartungen von Experten, gemessen z.B. mit der ifo World Economic Survey (WES), vorlaufende Indikatoren des Konjunkturzyklus' dar (Drechsel & Scheufele, 2012; Grossarth-Maticek & Mayr, 2008; Kater, 2008; Levanon, 2010). Das Konzept der Expectation Driven Business Cycles erklärt Veränderungen der konjunkturellen Lage durch veränderte Erwartungen, die wiederum durch „news shocks" ausgelöst werden. „Empirically, news shocks about future productivity growth explain a significant fraction of variability of macroeconomic variables in the U.S. and Japan, and induce an expansion in aggregate consumption, investment, employment, output and stock prices" (Karnizova, 2010, S. 739). Diese Erkenntnis findet sich bei Leduc und Sill (2010, S. 23) bestätigt: „We find that changes in expectations of future economic activity are a quantitatively important driver of economic fluctuations". Erwartungskonforme Entscheidungen von unternehmerischen Akteuren sind also Voraussetzung für konjunkturelle Veränderungen.

[2] Am Beispiel von privaten Konsumenten wurde bereits bestätigt, dass deren Erwartungen Prognosequalität für das GDP, wie z.B. bei Chua und Tsiaplias (2009); Matsusaka und Sbordone (1995) sowie Noelle-Neumann (1989), und auch für die Konsumausgaben, wie z.B. bei Carroll, Fuhrer und Wilcox (1994); Cotsomitis und Kwan (2006); Easawa und Heravi (2004); Kwan und Cotsomitis (2006); Ludvigson (2004); Souleles (2004) sowie Starr (2012), besitzen.

Behavioral Economics erklären den Einfluss u.a. von Erwartungen auf ökonomische Entscheidungen (z.B. Wiswede, 2007). Gleichzeitig sind Entscheidungen in die jeweilige makroökonomische Situation eingebettet. Erwartungen von Wirtschaftsexperten können dabei sowohl als Informationsquelle als auch als Richtschnur für die Erwartungsbildung anderer ökonomischer Entscheider wie Unternehmen oder Konsumenten dienen. Denn vor allem von Wirtschaftsexperten kann angenommen werden, dass sie ihre Wirtschaftserwartungen vergleichsweise objektiv und abstrahiert bilden. Im Gegensatz zu Unternehmern sollten Wirtschaftserwartungen von Experten weniger vom antizipierten Verhalten einzelner Konkurrenten oder Verkaufszahlen eines individuellen Unternehmens abhängen – sondern das ökonomische Verhalten von Unternehmen und Konsumenten im Aggregat antizipieren.

2.2 Die Rolle der Medienberichterstattung für die Erwartungsbildung

Ein Einfluss von Themen und Tenor der Wirtschaftsberichterstattung auf die Wahrnehmung der Wirtschaftslage wurde auf Bevölkerungsebene oft bestätigt. So lässt sich nicht nur zeigen, dass Medien eine wesentliche Quelle für Wirtschaftsinformationen in der Bevölkerung sind (Blinder & Krueger, 2004; Doms & Morin, 2004; Goidel, Procopio, Terrell & Wu, 2010), sondern auch, dass die Beurteilung der Wirtschaftslage in der Bevölkerung gemäss dem Agenda Setting und Second Level of Agenda Setting Ansatz von der Menge und dem Tenor der Wirtschaftsberichterstattung gefärbt ist (Bachl, 2009; Blood & Phillips, 1997; Brettschneider, 2003; Hagen, 2005; Haller & Norpoth, 1997; Hester & Gibson, 2003). Dabei zeigen manche Studien, dass negative Nachrichten einen stärkeren Effekt auf Erwartungen der Bevölkerung haben (Ju, 2008; Soroka, 2006; Wörsdorfer, 2005; Wu & Coleman, 2009). Auf Experten- und Unternehmensebene wurden Einflüsse der Medienberichterstattung bisher weniger oft analysiert. Eine Studie weist nach, dass Wirtschaftsnachrichten einen signifikanten Einfluss auf den Ifo-Geschäftsbeurteilungs- und Geschäftserwartungs-Index haben (Lamla, Lein & Sturm, 2007). Unternehmer sind aber laut Hagen (2005) vermutlich weniger stark von Medienberichterstattung zur Wirtschaftslage beeinflusst als Konsumenten, da sie auf nicht-mediale Quellen zurückgreifen können. Diese unterschiedlichen Wirkungsannahmen für Konsumenten und Unternehmensentscheider können mit dem Media Dependency Model (Ball-Rokeach & DeFleur, 1976) erklärt werden, nach dem Medienberichterstattung nicht direkt beobachtbare Ereignisse oder Themen erfahrbar machen kann. So ist die generelle Wirtschaftslage für Konsumenten weniger gut direkt erfahrbar als für Unternehmer, die sich zusätzlich zumindest über die Wirtschaftslage in ihrer Branche ein Bild machen können.

Inwieweit Wirtschaftsexperten von Medienberichterstattung beeinflusst sein können, ist offen. Es kann angenommen werden, dass sie im Rahmen ihrer Tätigkeit sehr hohen Informationsbedarf haben,

durch eigene Erfahrungen sehr gut informiert und damit weniger abhängig von Wirtschaftsberichterstattung sind. Laut Mast (2012, S. 134) greifen Führungskräfte aus Real- und Finanzwirtschaft bei Wirtschaftsfragen häufiger auf persönliche Gespräche mit Familie, Freunden oder Kollegen zurück als die allgemeine Bevölkerung. Auf Berichterstattung sind sie nur angewiesen, um sich ein Bild über die öffentliche Meinung zur Wirtschaftslage machen zu können. Diese Informationsstrategie hat Herbst (1998) am Beispiel von Politikern gezeigt. So nutzen Politiker eher Medienberichterstattung statt Bevölkerungsumfragen, um Zugang zur öffentlichen Meinung zu erlangen. Theoretisch lassen sich diese Annahmen mit dem Third-Person Effekt (Davison, 1983) begründen, nach dem ein stärkerer Effekt von Medienberichterstattung auf andere als auf sich selbst vermutet wird. Bisherige Forschung zeigt, dass hohes Involvement mit einem Thema (Perloff, 1989) sowie eine grosse und sozial fern liegende Gruppe, die Medienberichterstattung rezipiert, (Tewksbury, 2002) zu grösseren Third-person Effekten führen. Diese Ergebnisse lassen sich teilweise anhand der Literatur zum Finanzmarkt und seinen Entscheidern zeigen.

In Bezug auf den Finanzmarkt stellt Shiller (2005, S. 87) eine verstärkende, gleichschaltende Wirkung von medialer Berichterstattung auf Börsenkursentwicklungen durch das Ermöglichen von Herdenverhalten fest: „…significant market events generally occur only if there is a similar thinking among large groups of people, and the news media are essential vehicles for the spread of ideas“. Scheufele und Haas (2008) erklären diese Vermutung einer kollektiven Wirkung auf der Grundlage des Third-Person Effekts. Demzufolge nutzen auch Börsenexperten allgemein zugängliche Börsenberichterstattung, obwohl sie auf direkte Erfahrungen zurückgreifen können, um das Verhalten von unkundigen Börsen-Laien und damit Börsenkursentwicklungen antizipieren zu können. Auch Sommer (2013) argumentiert, dass die Veröffentlichung von Wirtschaftskennzahlen in der Berichterstattung Anlegerentscheidungen beeinflusst, da Anleger einerseits Kenntnis von Wirtschaftskennzahlen erlangen und andererseits wissen, dass andere Anleger diese Informationen auch erhalten und danach handeln könnten. Das Mehrheitsverhalten zu antizipieren, könne zudem als optimale Strategie von Anlegern bewertet werden, da der erwartete Erfolg vom Verhalten der Mehrheit abhängt (Ho & Wu, 2012).

Für politische Berichterstattung und die berufliche Position von Entscheidern weisen Nelissen, Konig und Renckstorf (2008) nach, dass Führungskräfte mehr politische Berichterstattung verfolgen als Personen mit weniger beruflicher Verantwortung. Dabei greifen Führungskräfte eher auf TV Nachrichten zurück. Moderierende Variable ist die höhere persönliche Relevanz von Politik. Ähnlich liesse sich vermuten, dass Wirtschaftsexperten, die zudem vermutlich oft eine Führungsposition innehaben, durch höhere persönliche Relevanz von Wirtschaftsthemen stärker auf Wirtschaftsberichterstattung

zugreifen. Kepplinger (2010) zeigt, dass Unternehmen mit Konsumenten als Endverbraucher Medien einen höheren Einfluss auf ihre Entscheidungen zuschreiben als Unternehmen der weiterverarbeitenden Industrie. Hier antizipieren Unternehmensentscheider demnach eine Wirkung von Medienberichterstattung auf Konsumenten. Ähnlich könnten Experten vorgehen, wenn sie ihre Wirtschaftserwartungen entwickeln. Da Wirtschaftsexperten das Handeln aller ökonomischen Akteure antizipieren müssen, um korrekte Erwartungen für die gesamtwirtschaftliche Lage eines Landes zu entwickeln, nehmen wir an, dass Experten Wirtschaftsberichterstattung heranziehen, Vermutungen über den Einfluss von Wirtschaftsberichterstattung auf Unternehmer und Konsumenten anstellen und auf dieser Basis ihre Erwartungen zur zukünftigen Wirtschaftslage entwickeln.

Befunde von Scheufele und Haas (2008, S. 299) finden jedoch am Beispiel von Finanzberichterstattung „…höchstens vereinzelte Hinweise darauf, dass die Aktienberichterstattung das Potenzial hat, das Verhalten so vieler Anleger zu beeinflussen, dass sich das auch auf der Ebene des Aktienkurses bzw. Handelsvolumens bemerkbar macht". Als Grund nennen die Autoren weitere Marktmechanismen, die medial beeinflusste Anleger kompensieren (Scheufele & Haas, 2008, S. 308). Nach zeitreihenanalytischen Tests finden Scheufele, Haas und Brosius (2011) eher Hinweise dafür, dass Medienberichterstattung durch Änderungen von Aktienkursen geprägt ist als dass Medienberichterstattung Einfluss auf Aktienkurse nehmen kann. Ähnlich bestätigt Metreveli (2012), dass tagesaktuellen Nachrichtenmedien handelsrelevante Informationen zu spät liefern, um praktische Relevanz für Händler aufzuweisen. Lediglich eine stark pessimistische Stimmung der Medienberichterstattung (Tetlock, 2007) oder die Stimmung der Medienberichterstattung während Rezessionen (Garcia, 2013) können Handelsvolumen oder Preise zeitweilig verändern. So nehmen Ho und Wu (2012) einen asymmetrischen Third-Person Effekt zugunsten negativer Nachrichten an. Entsprechend berücksichtigen wir die konjunkturelle Lage in unserer Analyse.

3 Forschungsfragen

Auch wenn auf Grundlage der bisherigen Forschung ein Einfluss der Medienberichterstattung auf Bevölkerungs- oder Unternehmererwartungen angenommen werden kann, bleibt unklar, inwieweit Wirtschaftsexpertenmeinungen von der Wirtschaftsberichterstattung gefärbt sein können. So kann vermutet werden, dass ein Einfluss je nach konjunktureller Lage unterschiedlich stark ausfällt. Ausserdem bilden Experten Wirtschaftserwartungen zu unterschiedlichen Themen aus (z.B. Währungsschwankungen, Investitionen, Konsumstimmung, allgemeine Wirtschaftsentwicklung u. ä.). Diese Bestandteile der Erwartungen können je nach Ausmass der direkten Erlebbarkeit und Antizipierbarkeit des Akteurshandelns von Medienberichterstattung geprägt sein. Dem Model of Media Depen-

dency und dem Third-Person Effekt folgend liesse sich einerseits vermuten, dass direkt erlebbare oder aus professioneller Sicht einfacher beurteilbare Aspekte wenig von Medienberichterstattung beeinflusst sind. Andererseits sollten nicht direkt erlebbare oder schlecht zu beurteilende Aspekte der Wirtschaftslage stärker vom Tenor der Wirtschaftsberichterstattung beherrscht sein.

Aus dem Stand der bisherigen Forschung werden daher folgende Forschungsfragen abgeleitet:

1) Wie hoch ist die Prognosequalität der Tonalität von Wirtschaftsnachrichten auf Wirtschaftserwartungen von Experten?
2) Unterscheidet sich die Prognosequalität der Tonalität von Wirtschaftsnachrichten auf Wirtschaftserwartungen von Experten je nach konjunktureller Lage?
3) Welche Aspekte der Wirtschaftserwartungen von Experten können von Wirtschaftsnachrichten vorhergesagt werden?

4 Studie

4.1 Daten

Um das Forschungsziel, eine potenzielle Prognosefähigkeit der Wirtschaftsberichterstattung für Wirtschaftserwartungen zu ermitteln, wird eine Sekundärdatenanalyse auf aggregiertem Datenniveau durchgeführt. Im Wesentlichen werden zwei Informationen genutzt: a) Daten zur Medienberichterstattung und b) zu Wirtschaftserwartungen von Experten.

a) Quellen der Medienberichterstattung von Eliten oder Entscheidern sind v.a. Qualitätszeitungen und Online-Informationsangebote (Jandura & Brosius, 2011; Mast, 2012) sowie spezialisierte Medien wie Fachzeitschriften, Nachrichten- und Wirtschaftsmagazine (Dernbach, 2010; Schenk & Mangold, 2011). Dabei sind Leser von Qualitätszeitungen auch an Informationssendungen in öffentlich-rechtlichen oder Spartenkanälen interessiert – nutzen diese aber weniger oft (Jandura & Brosius, 2011, S. 201; Mast, 2012, S. 138). Laut einer Studie der ARD-Werbung SALES & SERVICES (2007) nutzen Entscheider die Nachrichtensendungen ARD Tagesschau und ZDF heute häufiger vor allen anderen TV-Nachrichten. Gleichzeitig erreichen diese beiden Nachrichtensendungen die höchsten Einschaltquoten bei der Gesamtbevölkerung im Vergleich zu anderen TV-Nachrichten oder Tageszeitungen (Zubayr & Gerhard, 2012) und ihnen schreibt das Publikum eine hohe Nachrichtenkompetenz (Zubayr & Gerhard, 2005), Ausführlichkeit und Gründlichkeit bei der Berichterstattung sowie Glaubwürdigkeit zu (Zubayr & Geese, 2011). Sowohl Bürger als euch Führungskräfte aus Real- und Finanzwirtschaft sind zufrieden mit öffentlich-rechtlichem

Fernsehen (Mast, 2012, S. 130). Die Deutsch-Schweizer Entsprechung ist die Service public Hauptnachrichtensendung SRF Tagesschau, die ebenfalls hohe Einschaltquoten erreicht (Mediapulse AG, 2009; SRF, 2013). Im Allgemeinen ist das Angebot an Wirtschaftsnachrichten seit den 90er Jahren expandiert und auch das Interesse an Wirtschaftsnachrichten in der Bevölkerung gestiegen (Quiring, 2004, S. 52). Neben aktuellen politischen Nachrichten sind aktuelle Wirtschaftsnachrichten ein wichtiges Berichterstattungsthema bei öffentlich-rechtlichen sowie Service public Nachrichten in Deutschland und der Schweiz. Wirtschaftsberichterstattung macht rund ein Fünftel des Sendungsanteils der ARD und ZDF (Marcinkowski & Marr, 2010) sowie SRF Hauptnachrichten (Sommer, Einwiller, Ingenhoff & Winistörfer, 2010) aus. Um sich als Wirtschaftsexperte ein Bild von der allgemeinen Wirtschaftsberichterstattung, die die Bevölkerung rezipiert, machen zu können, eignen sich die Hauptnachrichtensendungen von ARD, ZDF und SRF aufgrund ihrer hohen Reichweite sowie ähnlichen Programmstatuten und Kriterien für die Nachrichtenauswahl (ARD Tagesschau; SRF; ZDF, 2011) gut.

Für Daten zur Medienberichterstattung wird dazu auf die häufig in wissenschaftlichen Analysen verwendeten[3] inhaltsanalytischen Daten zur Schweizer und deutschen Medienberichterstattung zur Wirtschaftslage der Media Tenor International AG, einem Unternehmen für Medienanalysen, zurückgegriffen. Für die öffentlich-rechtlichen Sender ARD und ZDF in Deutschland sowie dem Service public Sender SRF in der Schweiz liegen Daten für die Hauptnachrichtensendungen von 2002 Quartal 1 (D) bzw. 2007 Quartal 1 (CH) bis 2011 Quartal 2 vor. Die Codierung der kompletten Nachrichtensendungen wurde bei Media Tenor International AG von geschulten Vollzeit-Codierern anhand der originalen Sendungen vorgenommen. Analyseeinheit sind alle Beiträge zur Politik mit Wirtschaftsbezug sowie Beiträge zum Thema Wirtschaft. Die Tonalität der Berichte wird als positiv, neutral oder negativ codiert. Dabei werden nur eindeutig wertende Beschreibungen oder Kontexte von Akteuren oder Situationen (z.B. Unternehmensgewinne vs. steigende Arbeitslosigkeit) als positiv oder negativ codiert. Die Intercoderreliabilität beträgt über den gesamten Zeitraum mindestens 87 Prozent (Media Tenor, 2012).

Für die Analyse wurden sämtliche Beiträge eines Quartals zusammengefasst. Die Anzahl der Berichte wurde dabei aufsummiert und die Tonalität arithmetisch gemittelt. Insgesamt liegen für die ARD Tagesschau n = 7'854, für ZDF heute n = 7'953 und für die SRF Tagesschau ab dem 3. Quartal 2007 n = 2'039 Berichte zur Wirtschaftslage vor. Abbildung 1 stellt die Anzahl der Medi-

[3] z.B. in Garz (2012); Grossarth-Maticek und Mayr (2008); Lamla, Lein und Sturm (2007); Lamla und Lein (2008); Wörsdorfer (2005).

enberichte zur Wirtschaftslage pro Quartal, Tabelle 1 die jeweiligen Themenkategorien pro Jahr und Abbildung 2 die mittlere Tonalität dieser Medienberichte für das jeweilige Quartal dar. Seit Ende 2008 hat sich im Zuge der Finanzkrise, die sich in Deutschland mit einem Tiefstand des Bruttoinlandsprodukts (BIP) Anfang 2009 äussert (s. Abbildung 3), das Volumen der Wirtschaftsberichterstattung bei allen drei Nachrichtensendungen und der Anteil der Berichte zur allgemeinen Wirtschaftslage erhöht. Die bis 2007 neutrale bis positive Tonalität verschlechtert sich daraufhin. Auffällig ist, dass die ARD Tagesschau und ZDF heute ähnlich bei der Anzahl der Medienberichte, der Themenverteilung und der Tonalität sind und sich die SRF Tagesschau in diesen Aspekten oft unterscheidet. Das SRF (ab 2007) legt den Schwerpunkt weniger auf das Thema Staat/Rahmen/Standort sondern weist einen erhöhten Anteil der Sonstiges-Kategorie im Vergleich zu ARD und ZDF auf. Eine verstärkte Orientierung der SRF Berichterstattung an einzelnen Grossunternehmen und Branchen kann den hohen Anteil der Sonstiges-Kategorie erklären (Sommer et al., 2010).

b) Wirtschaftserwartungen werden vom ifo Institut in der World Economic Survey (WES) für die Schweiz und Deutschland ermittelt. Bei den befragten Personen handelt es sich um Experten aus Institutionen wie Universitäten oder Zentralbanken sowie aus multinationalen Unternehmen des jeweiligen Landes (ifo, 2013). Damit stellt die WES keine reine Unternehmer-, sondern eine Wirtschaftsexpertensicht dar. Im Rahmen der WES werden Urteile zur generellen Wirtschaftslage und -entwicklung anhand wesentlicher VGR-Indikatoren quartalsweise ermittelt. Die Daten der WES sollen ein „möglichst aktuelles Bild über die Wirtschaftslage sowie Prognosen für wichtige Industrie-, Schwellen- und Entwicklungsländer“ (ifo, 2013) liefern. Die befragten Experten werden um die Beurteilung der aktuellen sowie in den nächsten sechs Monaten erwarteten allgemeinen Wirtschaftslage, der Investitionsausgaben und des privatem Konsums des jeweiligen Landes gebeten. Die Beurteilung erfolgt auf einer dreistufigen Skala von gut/besser (Skalenwert 9), befriedigend/ungefähr gleich (Skalenwert 5) und schlecht/schlechter (Skalenwert 1) (s. Anhang 1). Die Gegenwartsbeurteilung und die Zukunftserwartung der Wirtschaftsexperten ist in Abbildung 4 zu den Aspekten allgemeine Wirtschaftslage, Investitionsausgaben und private Konsumausgaben für Deutschland und die Schweiz abgebildet.

Als Kontrollvariablen werden ergänzend die reale Wirtschaftsentwicklung in Form des BIP von Deutschland und der Schweiz mit aufgenommen (s. Abbildung 3). Die Daten zum BIP stammen von Eurostat und sind arbeitstags- und saisonbereinigt.

Abbildung 1: Anzahl der Berichte zur Wirtschaftsberichterstattung (absolute Zahlen)

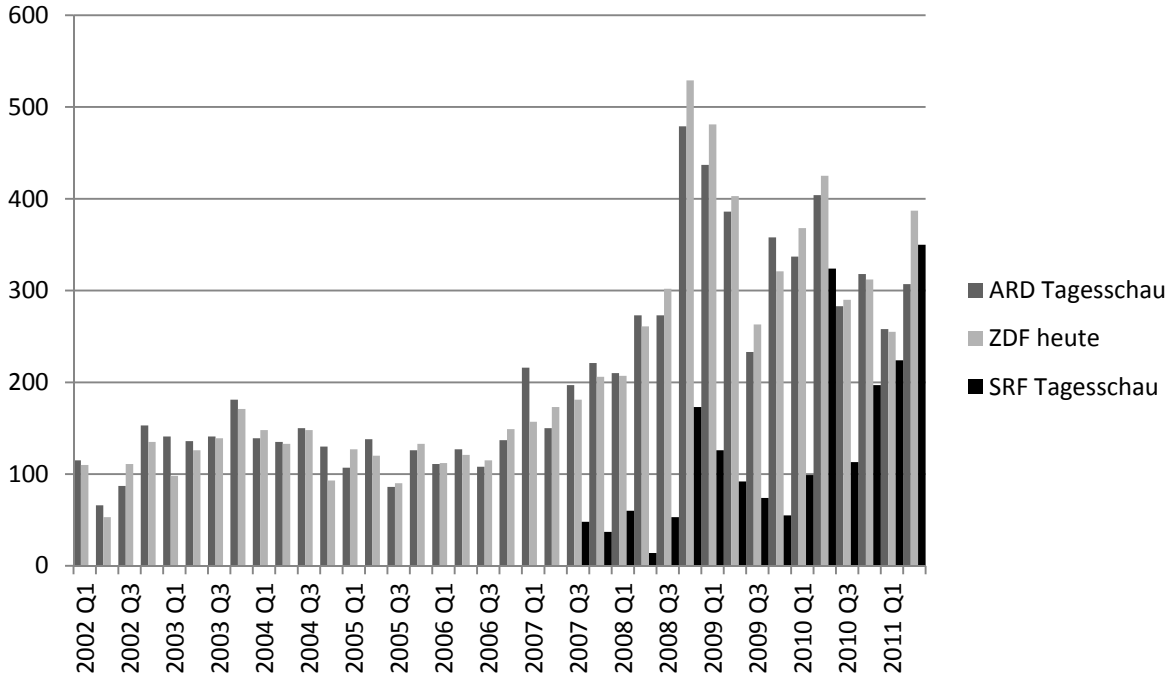


Tabelle 1: Themen der Wirtschaftsberichterstattung (Prozent)

Jahr	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*
					ARD Tagesschau					
Allgemeine Wirtschaftslage	9.0	8.5	9.2	6.8	5.0	15.9	18.4	21.0	10.8	13.1
Beschäftigung	18.5	15.9	22.0	29.3	23.8	13.0	9.1	8.2	14.3	14.3
Stimmung	2.1	3.5	4.2	2.8	3.3	1.7	1.9	4.2	0.9	0.0
Staat/Rahmen/Standort	55.6	64.8	54.3	53.0	56.5	47.4	55.1	60.0	66.1	48.1
Sonstiges	14.7	7.3	10.3	8.1	11.4	21.9	15.5	6.6	7.9	24.4
Summe	100	100	100	100	100	100	100	100	100	100
					ZDF heute					
Allgemeine Wirtschaftslage	8.6	10.7	7.7	5.1	8.9	17.7	20.6	23.1	14.6	15.6
Beschäftigung	17.6	14.0	25.1	26.2	23.9	13.5	8.3	6.9	13.1	14.2
Stimmung	5.1	4.1	4.2	4.7	3.2	2.8	2.7	4.6	1.3	0.6
Staat/Rahmen/Standort	57.5	62.4	55.2	53.8	50.9	43.5	51.0	56.7	61.6	46.9
Sonstiges	11.2	8.8	7.9	10.2	13.1	22.5	17.4	8.7	9.4	22.7
Summe	100	100	100	100	100	100	100	100	100	100
					SRF Tagesschau					
Allgemeine Wirtschaftslage	k.D.	k.D.	k.D.	k.D.	k.D.	19.9	33.3	20.7	16.0	27.9
Beschäftigung	k.D.	k.D.	k.D.	k.D.	k.D.	19.9	4.7	13.8	6.3	5.9
Stimmung	k.D.	k.D.	k.D.	k.D.	k.D.	5.8	5.0	7.5	2.7	3.3
Staat/Rahmen/Standort	k.D.	k.D.	k.D.	k.D.	k.D.	33.3	13.7	18.2	37.8	40.8
Sonstiges	k.D.	k.D.	k.D.	k.D.	k.D.	21.1	43.3	39.8	37.2	22.1
Summe						100	100	100	100	100

Anmerkungen: * 2011 enthält nur Quartal 1 und 2, k.D.: keine Daten vorhanden

Abbildung 2: Tonalität der Wirtschaftsberichterstattung (Mittelwerte, 1: positiv, 0: neutral, -1: negativ)

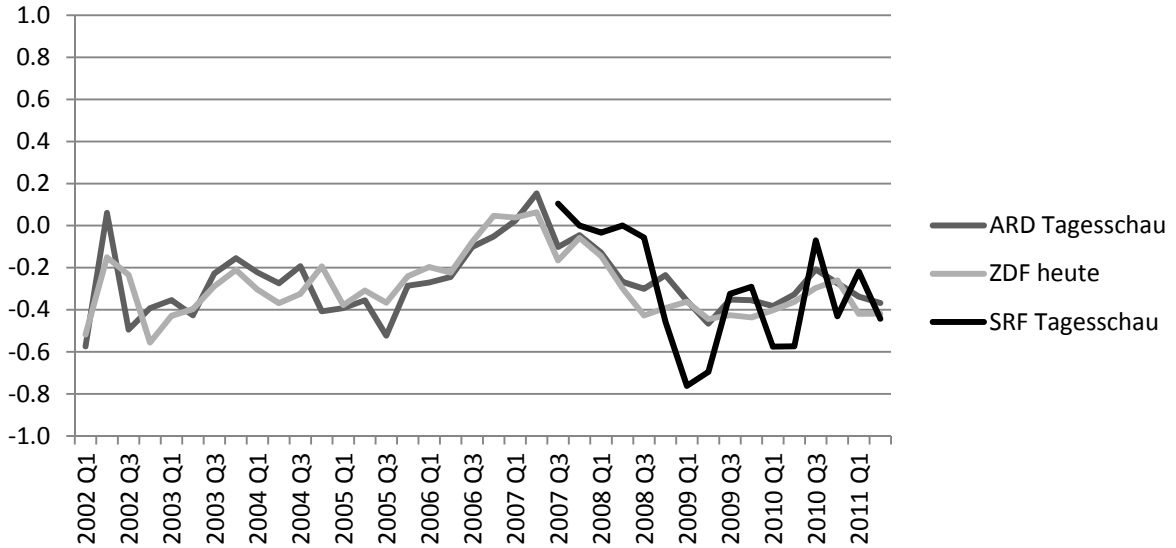


Abbildung 3: Bruttoinlandsprodukt (in Mio. Euro, arbeitstags- und saisonbereinigt)

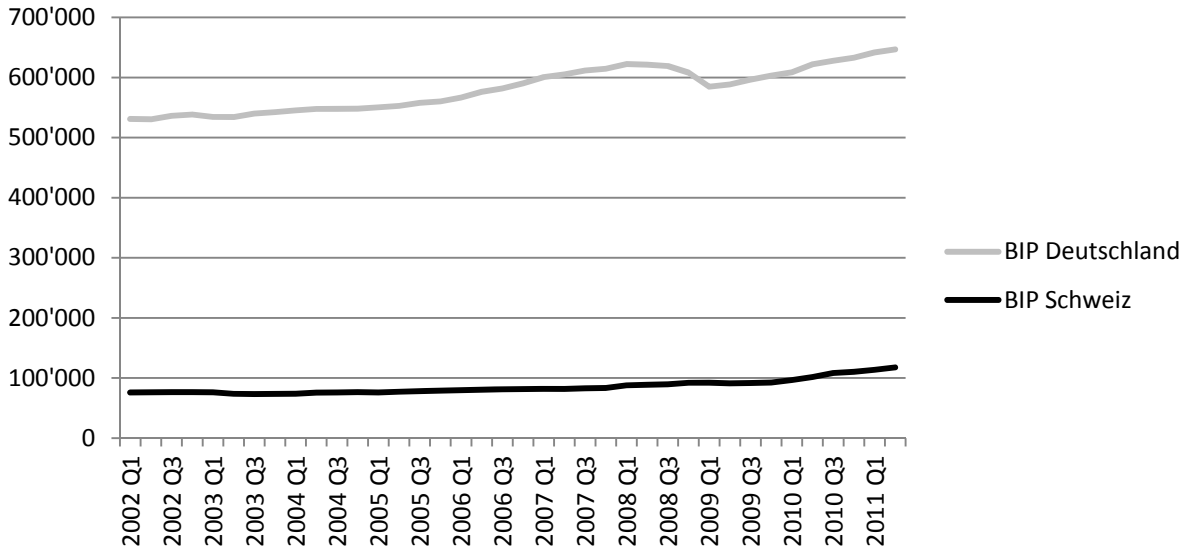
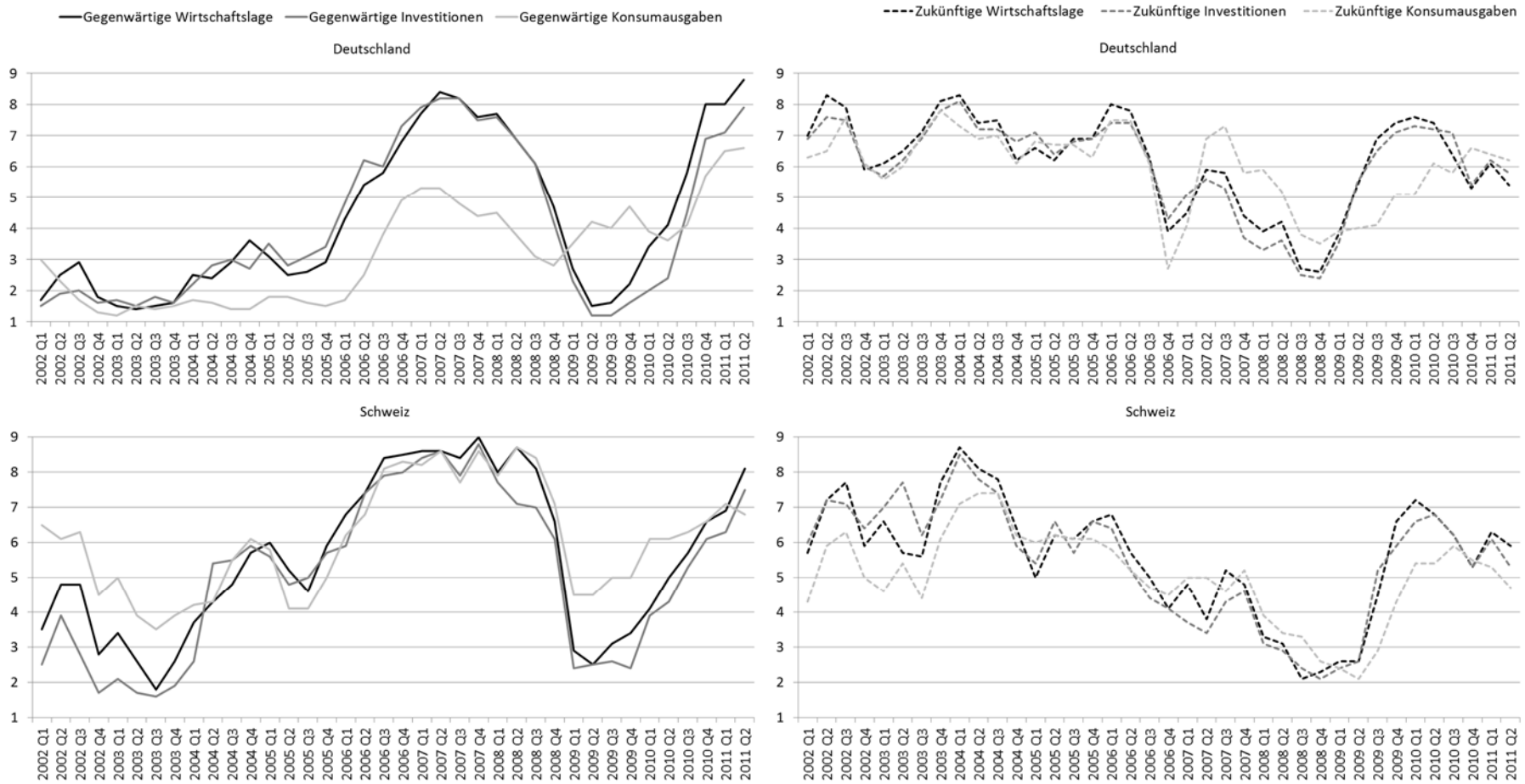


Abbildung 4: Gegenwartsbeurteilung und Zukunftserwartungen der Wirtschaftsexperten (Mittelwerte, 9: gut bzw. besser, 5: befriedigend bzw. ungefähr gleich, 1: schlecht bzw. schlechter)



4.2 Analyse

Die Analyse orientiert sich an ökonometrischen Standardvorgehen für Zeitreihendaten. Diese werden bisher im Bereich der Medienökonomie und Kommunikationsforschung wenig eingesetzt, da selten lange Zeitreihen vorhanden sind. Doch gerade die Analyse des zeitlichen Verlaufs und die Prognose sind oft zielführend für Fragen im Fach. Beispielsweise zeigen sich um vier Wochen verzögerte Tenoreffekte von Medienberichterstattung auf Verhalten beim Thema Ausländerfeindlichkeit (Esser, Scheufele & Brosius, 2002). Auch Informationen zur Wirtschaftslage verbreiten sich zeitverzögert innerhalb der Bevölkerung, da ein „Update" zur Konjunktur durch Konsumenten oft lediglich alle sechs Monate oder seltener stattfindet (Carroll, 2003; Döpke, Dovern, Fritsche, & Slacalek, 2008; Mankiw, Reis, & Wolfers, 2003). Um zu analysieren, inwieweit solche oder umgekehrte Zeitverzögerungen auf den Zusammenhang zwischen Wirtschaftsberichterstattung und Expertenmeinungen zutreffen, wurden für die vorliegende Untersuchung Vektor Autoregressive Modelle (VAR) sowie Granger Kausalität berechnet. VAR Modelle beschreiben eine Variable als Funktion ihrer eigenen Vergangenheit sowie der Vergangenheit weiterer Einflussvariablen. Granger Kausalität testet, ob sich eine zu erklärende Variable durch die Vergangenheit einer anderen Variable besser vorhersagen lässt (Granger, 1969). Damit leistet Granger Kausalität keinen Nachweis eines Ursache-Wirkungs-Zusammenhangs zwischen zwei Variablen, sondern deckt streng genommen lediglich Prognosequalität auf. Das Vorliegen einer Wirkungsbeziehung liegt jedoch nahe, sofern sie theoretisch fundiert ist.

Zunächst wurde jedoch die Erfüllung von Voraussetzungen der Daten für die Analysemethoden für Zeitreihen geprüft. Dazu wurden Tests auf Stationarität (Augmented Dickey–Fuller (ADF) Test, Kwiatkowski–Phillips–Schmidt–Shin (KPSS) Test) durchgeführt und als Ergebnis wurden die Daten differenziert (y_t–y_{t-1}) um Mittelwert-Stationarität zu erreichen und damit eine Überschätzung von Zusammenhängen oder Scheinzusammenhänge aufgrund von gleichen Trends in den Daten zu vermeiden. Alle Analysen wurden anhand differenzierter Datenreihen, die das Wachstum von einem Quartal zum Vorquartal darstellen, durchgeführt. Abschliessend wurden Post-Tests durchgeführt, um die Güte und Effizienz der Schätzungen zu prüfen (Lagrange Multiplier Test für Autokorrelation der Residuen und White Noise Tests der Residuen, Eigenwert-Stabilität, Normalverteilung des Fehlerterms). Die Anzahl der aufgenommenen Zeitverzögerungen (Lags) orientiert sich an Akaike's information criterion, Schwarz's Bayesian information criterion, Hannan–Quinn's information criterion und der Wald lag exclusion Statistik. Meistens reichte die Verzögerung (Lag) von einem Quartal für ein gutes und effizientes VAR Modell oder die Güte des Modells hat sich mit der Aufnahme von wei-

teren Lags nicht verbessert. Letzteres ist vor allem dann der Fall, wenn die in Bezug gesetzten Variablen keine gegenseitige Erklärungskraft aufweisen und das Modell damit fehlspezifiziert ist.

Die Untersuchung stellt einen Zusammenhang zwischen der Tonalität (Ton) der Wirtschaftsnachrichten und Expertenmeinungen und -erwartungen (E) her. Der Einfluss der Tonalität wird mit dem entsprechenden Volumen (Vol) der Wirtschaftsberichterstattung und der realen Wirtschaftsentwicklung kontrolliert (BIP). Ein entsprechendes VAR Modell mit dem Einbezug des jeweiligen vorherigen Quartals der zu erklärenden Variable kann wie folgt beschrieben werden:

$$(1)\ E_t = \mu_1 + \lambda_1 E_{t-1} + \sigma_1 Ton_{t-1} + \varsigma_1 Vol_{t-1} + \gamma_1 BIP_{t-1} + u_{1t}$$

wobei μ die Konstante ist, λ, σ, ς und γ Koeffizienten sind und u der Fehlerterm ist. Als Konkurrenzmodell wurde jeweils ein identisches VAR Modell, jedoch ohne den Einfluss von Wirtschaftsberichterstattung berechnet, um den Beitrag der Berichterstattung an der Varianzaufklärung der Expertenmeinungen zu isolieren:

$$(2)\ E_t = \mu_2 + \lambda_2 E_{t-1} + \gamma_2 BIP_{t-1} + u_{2t}$$

Für jede Nachrichtensendung und jeden Aspekt der Expertenmeinungen wurden separate VAR Modelle berechnet, deren Lag-Struktur sich je nach den Ergebnissen der Post-Tests unterscheiden kann. Für die Analyse wurden die Daten aufgrund der veränderten Wirtschaftslage durch die Finanzkrise anhand der im Sommer 2007 beginnenden Subprimekrise in zwei Zeiträume bis 2007 Quartal 2 sowie ab 2007 Quartal 3 geteilt. Daher wurden jeweils VAR Modelle bis 2007 Quartal 2 sowie ab 2007 Quartal 3 separat berechnet. Ab diesem Zeitraum beginnt das Volumen der Wirtschaftsberichterstattung zu wachsen (Abbildung 1) und ihre Tonalität wird negativer (Abbildung 2). Erkenntnisse im Rahmen der Agenda Setting Forschung und des Third-Person Effekts legen daher einen stärkeren Wirkungszusammenhang in diesem Zeitraum nahe. Das um Fallzahl und Anzahl der Einflussvariablen korrigierte Bestimmtheitsmass (kR^2) jedes VAR Modells gibt dabei Auskunft über die Güte der Spezifikation. Um den Beitrag der Wirtschaftsberichterstattung an der Varianzaufklärung der Expertenmeinungen zu bestimmen, wurde die jeweilige Differenz zwischen VAR Modell (2) und (1) berechnet (ΔkR^2).

5 Ergebnisse

5.1 Wie hoch ist die Prognosequalität der Tonalität von Wirtschaftsnachrichten auf Wirtschaftserwartungen von Experten?

Die Ergebnisse der VAR Modelle sowie der Granger Kausalität sind in **Fehler! Verweisquelle konnte nicht gefunden werden.**Tabelle 2 dargestellt. Dabei beziehen sich die Ergebnisse auf die Wirtschaftsberichterstattung als unabhängige und die Expertenmeinungen als abhängige Variable innerhalb des VAR Modells.

Aus der Tabelle wird ersichtlich, dass der Einfluss der Medienberichterstattung über die Nachrichtensendungen hinweg unterschiedlich ist und für einige Aspekte der Expertenmeinungen partiell vergleichsweise stark werden kann. Vor der Finanzkrise erklärt die vergangene Berichterstattung der ARD Tagesschau 29 Prozent der Varianz in der Beurteilung der gegenwärtigen, allgemeinen Wirtschaftslage (s. oberer Teil Tabelle 2). Die vergangene Wirtschaftsberichterstattung von ZDF heute kann etwa ein Fünftel der Beurteilung der gegenwärtigen Konsumausgaben vor der Finanzkrise erklären. Hier hat die Tonalität die höchste gemessene Prognosequalität ($F = 19.80$, $p < .001$**Fehler! Verweisquelle konnte nicht gefunden werden.**). Betrachtet man die Vorzeichen der Einflussvariablen im VAR Modell zeigt sich, dass die Tonalität vor einem Quartal (Lag1) die derzeitige Beurteilung der Konsumausgaben deutlich positiv beeinflusst, wogegen die Tonalität vor zwei Quartalen (Lag2) die Beurteilung negativ lenkt. Weitere Einflussfaktoren auf die Konsumausgaben sind ihre eigene Vergangenheit (Lag1 und Lag2), das Volumen der Berichterstattung und das BIP. Der Einfluss des Volumens der Berichterstattung hat ein negatives Vorzeichen, d.h., je mehr Wirtschaftsberichterstattung erfolgte, desto negativer hat sich die Beurteilung der Konsumausgaben entwickelt.

Nach der Krise erklären die ARD- und ZDF-Berichterstattung besonders die Zukunftserwartungen zu Konsumausgaben mit 56 bzw. 71 Prozent sehr stark (s. unterer Teil Tabelle 2). Die Granger Kausalität bestätigt der ARD- und ZDF-Tonalität eine hohe Vorhersagekraft für die Zukunftserwartungen zur Entwicklung der Konsumausgaben ($F = 12.50$, $p < .01$ bzw. $F = 6.35$, $p < .05$**Fehler! Verweisquelle konnte nicht gefunden werden.**). Auch die Varianz der gegenwärtigen Beurteilung der Konsumausgaben kann zu ca. einem Fünftel von der vergangenen Medienberichterstattung vorausgesagt werden. Keine Vorhersagekraft hat dagegen die Wirtschaftsberichterstattung der SRF Tagesschau für alle Aspekte der Expertenmeinungen. Ähnlich wie die Erwartungen deutscher Experten kann das BIP tendenziell die Erwartungen der Schweizer Experten zur Wirtschaftslage und zu Investitionen vorhersagen. Das meist geringe korrigierte Bestimmtheitsmass kR^2 impliziert zudem ein fehlspezifiziertes

Modell der Schweizer Wirtschaftserwartungen anhand der Tonalität der SRF Tagesschau. Die VAR Modelle enthalten also keine Variablen, die Veränderungen der Wirtschaftserwartungen Schweizer Experten erklären können.

5.2 Unterscheidet sich die Prognosequalität der Tonalität von Wirtschaftsnachrichten auf Wirtschaftserwartungen von Experten je nach konjunktureller Lage?

Vor der Finanzkrise finden sich lediglich zwei Hinweise für einen Einfluss der Wirtschaftsnachrichten auf Expertenmeinungen zur gegenwärtigen Lage. Wirtschaftserwartungen waren vor der Krise nicht von Wirtschaftsberichterstattung gefärbt. Nach 2007 kann die Wirtschaftsberichterstattung dagegen sechs Mal eine Prognosequalität für die Meinungen deutscher Wirtschaftsexperten bescheinigt werden. Vier dieser Fälle betreffen Meinungen zur gegenwärtigen Lage, zwei betreffen Zukunftserwartungen. Sowohl die Tonalität der ARD- und ZDF- Wirtschaftsnachrichten können die Zukunftserwartungen zum Aspekt Konsumausgaben vorhersagen, die Tonalität der SRF Tagesschau jedoch nicht. Je positiver oder negativer die Wirtschaftsnachrichten im Vorquartal ausfielen, desto positiver bzw. negativer sind die Erwartungen zu Konsumausgaben, die die deutschen Experten entwickelten. Die Werte des korrigierten Bestimmtheitsmasses (kR^2) deuten auf eine bessere Spezifikation der Modelle für die Expertenmeinungen anhand ARD- und ZDF-Nachrichten nach 2007 als vor 2007 hin, wobei Raum für weitere Erklärungsvariablen besteht.

Vor der Krise besitzt die Berichterstattung der ARD-Tagesschau eine gute Prognosequalität für die Beurteilung und die Erwartungen zur allgemeinen Wirtschaftslage. Dieser Zusammenhang besteht nach 2007 nicht weiter. Auch bei den Schweizer Expertenmeinungen zeigt sich zu beiden Themen kein Zusammenhang mit der Tonalität der SRF Tagesschau im selben Zeitraum. Dagegen kann die Wirtschaftsberichterstattung von ZDF heute nach 2007 tendenziell die Einschätzung der allgemeinen Wirtschaftslage sowie der Investitionen vorhersagen.

5.3 Welche Aspekte der Wirtschaftserwartungen von Experten können von Wirtschaftsnachrichten vorhergesagt werden?

Die Einschätzung der zukünftigen Wirtschaftslage sowie der derzeitigen und zukünftigen Investitionsausgaben sind selten von der ARD-, ZDF-, oder SRF-Berichterstattung geprägt. Stattdessen hängen die Beurteilung der zukünftigen Wirtschaftslage sowie der Investitionsausgaben nach 2007 tendenziell mit der vergangenen BIP-Entwicklung zusammen. Für die Beurteilung der gegenwärtigen bzw. zukünftigen Investitionsausgaben zeigt sich vielmehr ein umgekehrter Zusammenhang für die Berichterstattung der SRF Tagesschau sowie ZDF heute (s. unterer Teil Tabelle 2). Nach 2007 sagen

die Expertenmeinungen zur derzeitigen Lage bzw. zur Entwicklung unternehmerischer Investitionsausgaben die Tonalität der SRF- und ZDF-Berichterstattung vorher, was möglicherweise auf den vorlaufenden Charakter von Investitionen für die allgemeine Wirtschaftslage und der damit verbundenen Berichterstattung zurückführbar ist.

Die Tonalität von ZDF heute kann die Gegenwartsbeurteilung aller drei Aspekte nach 2007 mindestens tendenziell vorhersagen. Vor allem nach 2007 hat die vergangene Wirtschaftsberichterstattung der ARD- und ZDF-Berichterstattung einen mittleren Erklärungsbeitrag an der Varianz der Beurteilung der derzeitigen Konsumausgaben – die SRF Tagesschau dagegen keinen. Für die Erwartungen der Konsumausgabenentwicklung scheinen sich deutsche Experten nach 2007 stark an der vergangenen ARD- und ZDF-Berichterstattung zu orientieren, Schweizer Experten dagegen nicht.

Tabelle 2: Einfluss der Wirtschaftsnachrichten auf Expertenmeinungen

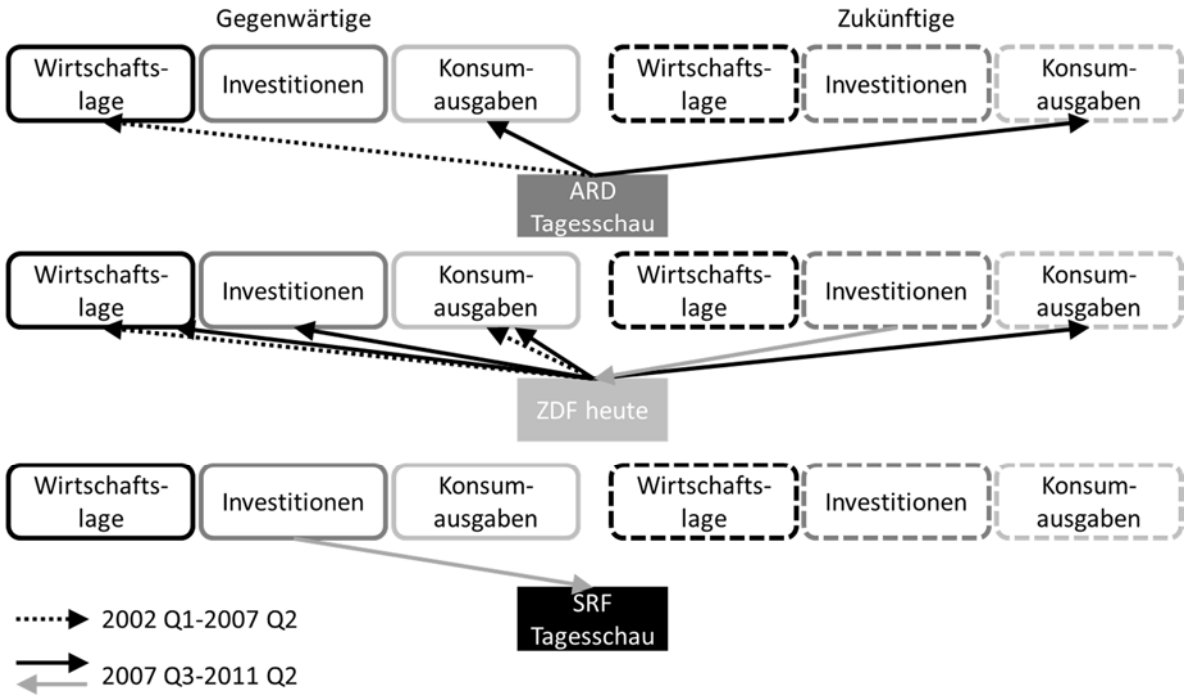
	Gegenwartsbeurteilung			Zukunftserwartung		
	Wirtschafts-lage	Investitio-nen	Konsum-ausgaben	Wirtschafts-lage	Investitio-nen	Konsum-ausgaben
			2002 Q1-2007 Q2			
ARD Tagesschau						
kR^2 (1)	0.40	0.09	0.47	0.10	0.06	0.00
ΔkR^2 (1)-(2)	0.29	0.10	-0.06	0.14	0.05	0.04
Granger Ton	8.06*	n.s.	n.s.	n.s.	n.s.	n.s.
Einflussvar.	Ton*Lag1+	n.s.	E**Lag1+	Vol°Lag1+	n.s.	n.s.
ZDF heute						
kR^2 (1)	0.19	0.04	0.83	0.32	-0.05	0.10
ΔkR^2 (1)-(2)	0.08	0.06	0.21	-0.08	-0.05	-0.02
Granger Ton	3.37°	n.s.	19.80***	n.s.	n.s.	n.s.
Einflussvar.	Ton°Lag1+	n.s.	Ton***Lag1+, 2-E***Lag1+, 2-Vol*Lag1-BIP***Lag1+	E°Lag1+	n.s.	n.s.
			2007 Q3-2011 Q2			
ARD Tagesschau						
kR^2 (1)	0.52	0.53	0.25	0.22	0.20	0.51
ΔkR^2 (1)-(2)	0.01	0.03	0.17	-0.08	-0.08	0.56
Granger Ton	n.s.	n.s.	3.62°	n.s.	n.s.	6.35*
Einflussvar.	n.s.	n.s.	Ton°Lag1+	BIP°Lag1-	BIP°Lag1-	Ton**Lag1+
ZDF heute						
kR^2 (1)	0.67	0.64	0.31	0.31	0.26	0.46
ΔkR^2 (1)-(2)	0.16	0.16	0.23	0.00	-0.09	0.71
Granger Ton	3.55°	4.18°	4.96*	n.s.	n.s.[1]	12.50**
Einflussvar.	Ton°Lag1+ Vol*Lag1-BIP*Lag1+	Ton°Lag1+	Ton*Lag1+	BIP°Lag1-	n.s.	Ton**Lag1+
SRF Tagesschau						
kR^2 (1)	0.09	-0.08	-0.12	0.25	0.12	0.01
ΔkR^2 (1)-(2)	-0.03	-0.06	0.02	0.03	-0.12	-0.07
Granger Ton	n.s.	n.s.[2]	n.s.	n.s.	n.s.	n.s.
Einflussvar.	n.s.	n.s.	n.s.	BIP*Lag1-	BIP°Lag1-	n.s.

kR^2 (1): korrigiertes R^2 des VAR Modells (1), ΔkR^2 (1)-(2) ist der Beitrag der Medienberichterstattung (Tonalität (Ton) und Volumen (Vol)) an kR^2 (1). Wenn das korrigierte R^2 des VAR Modells (2) negativ ausfällt, ist ΔkR^2(1)-(2) grösser als kR^2 (1).
Granger Ton: Granger Kausalität zwischen Tonalität der Berichterstattung und der jeweiligen Expertenmeinung (F-Wert).
Einflussvar.: Die Richtung des Einflusses ist hinter den Variablenkürzeln mit +/- gekennzeichnet.
Lag1 bezieht sich auf das Vorquartal, Lag2 auf zwei Quartale zuvor.
1) Umgekehrte Richtung der Granger Kausalität: E → Ton ($F = 3.74$, $p < .10$).
2) Umgekehrte Richtung der Granger Kausalität: E → Ton ($F = 4.96$, $p < .10$).
n.s.: nicht signifikant auf 90%-Niveau, °: signifikant auf 90%-Niveau, *: signifikant auf 95%-Niveau, **: signifikant auf 99%-Niveau, ***: signifikant auf 99.9%-Niveau

6 Diskussion und Schlussfolgerungen

Für ökonomische Erwartungsbildung und Entscheidungen konkurrieren Nachrichteninhalte und ihre Rezeption mit vielen weiteren Informationsquellen sowie individuellen Dispositionen und Erlebnissen. Tonalität oder Sentiment von Nachrichten stellen lediglich ein Teil der Einflussvariablen auf die Erwartungsbildung dar. Diese Untersuchung zeigt am Beispiel von deutschen öffentlich-rechtlichen und Schweizer Service public Hauptnachrichten, dass die Tonalität vergangener Wirtschaftsnachrichten bis zu 71 Prozent der Varianz von Wirtschaftserwartungen von Experten vorhersagen kann. Je nach Nachrichtensendung, Konjunkturphase und Aspekt der Expertenmeinungen ergeben sich jedoch Unterschiede in der Prognosequalität der Wirtschaftsberichterstattung. Abbildung 5 fasst die Zusammenhänge zwischen der Tonalität der Berichterstattung und der Expertenmeinungen zusammen. Der Einfluss der Wirtschaftsnachrichten ist nach dem Beginn der Finanzkrise vor allem für die gegenwärtige Beurteilung und die Erwartungen zu privaten Konsumausgaben höher. Die häufigste und stärkste Vorhersagekraft für die Expertenmeinungen besitzt die Wirtschaftsberichterstattung von ZDF heute. Die Tonalität von ZDF heute erklärt vor der Krise vor allem die gegenwärtige Beurteilung der Konsumausgaben und nach der Krise auch die der Wirtschaftslage und Investitionen sowie die zukünftige Erwartung der Konsumausgaben. Die Tonalität der ARD Tagesschau erklärt bis 2007 Q2 vor allem Beurteilungen zur allgemeinen Wirtschaftslage und ab 2007 Q3 zu den Konsumausgaben. Die Wirtschaftsberichterstattung der SRF Tagesschau hat dagegen keine Erklärungskraft für Expertenmeinungen. Abgesehen von der Wirtschaftsberichterstattung weisen die VAR Modelle für Schweizer Expertenmeinungen im Vergleich weniger Erklärungskraft auf als für Meinungen der deutschen Experten. Das heisst zum einen, dass die VAR Modelle für Schweizer Expertenmeinungen fehlspezifiziert sind, also andere Variablen Schweizer Expertenmeinungen erklären, und zum anderen, dass sich Schweizer Expertenmeinungen weniger gut von ihrer eigenen Vergangenheit erklären lassen als die der deutschen Experten, also keine autoregressiven Prozesse sind.

Abbildung 5: Zusammenhang zwischen der Tonalität der Wirtschaftsberichterstattung und der Expertenmeinungen



Der selektive Einfluss von Wirtschaftsberichterstattung auf die Bewertung der Konsumausgaben weist darauf hin, dass sich deutsche Experten bei diesem ihnen eher unzugänglichen Thema an der Wirtschaftsberichterstattung orientieren. Zusätzlich war der Einfluss der Berichterstattung nach dem Beginn der Finanzkrise höher, was durch die negativere Tonalität und nur z.T. auch durch das höhere Nachrichtenvolumen hervorgerufen wurde. Dieses Ergebnis kann als Bestätigung des Dependency Model of Mass Media Effekts (Ball-Rokeach & DeFleur, 1976) sowie des Third-Person Effekts (Davison, 1983) gewertet werden. Vor allem zu Zeiten von erhöhter Unsicherheit wie der Finanzkrise wird auf Medienberichterstattung für die Erwartungsbildung von unzugänglichen Themen zurückgegriffen, für die eine Medienwirkung auf Konsumenten im Sinne des Third-Person Effekts antizipiert werden kann. Damit bestätigen wir bisherige Forschung zum Finanzmarkt, die der pessimistischen Stimmung von Medienberichterstattung während Rezessionen Einfluss auf das Anlegerverhalten bescheinigt (Garcia, 2013; Ho & Wu, 2012; Tetlock, 2007). Entsprechend wird die Wirkung von negativer Wirtschaftsberichterstattung auf Konsumenten von Wirtschaftsexperten möglicherweise überschätzt, wie Ho und Wu (2012) vermuten, womit die bessere Prognosequalität der negativeren Wirtschaftsberichterstattung ab 2007 Q3 für Expertenmeinungen erklärbar ist.

Trotz der Ähnlichkeit der Nachrichtenformate und ihres Programmauftrags bestehen klare Unterschiede bei der Prognosequalität für unterschiedliche Aspekte der Expertenmeinungen, zwischen Deutschland sowie der Schweiz und der ARD Tagesschau und ZDF heute. Auch Goidel, Procopio, Terrell und Wu (2010) stellen fest, dass sich die Beurteilung der persönlichen finanziellen Lage je nach medialer Informationsquelle unterscheiden. In der vorliegenden Untersuchung kann der Unterschied zwischen Deutschland und der Schweiz zum einen methodisch verursacht sein. So deckt die Inhaltsanalyse der SRF Tagesschau lediglich den Deutschschweizer Teil der Wirtschaftsberichterstattung ab, die WES-Expertenbefragung bezieht sich jedoch auf Wirtschaftsexperten in allen Sprachregionen der Schweiz. Weiter kann der Unterschied an einem unterschiedlichen Mediennutzungsverhalten der befragten deutschen und Schweizer Experten oder auch an einer unterschiedlichen Wahrnehmung der Unsicherheit durch die Finanzkrise liegen. Das Schweizer BIP war im Gegensatz zum deutschen während der Finanzkrise kaum rückläufig. Jedoch fielen die Schweizer Wirtschaftserwartungen ähnlich negativ wie in Deutschland aus und erholten sich sogar erst später (s. Abbildung 4). Einen weiteren Erklärungsansatz bieten die unterschiedliche Tonalität und Volumen der SRF-Wirtschaftsberichterstattung von denen der ARD und des ZDF. Die Entwicklung der Expertenmeinung war dagegen zwischen Deutschland und der Schweiz ähnlicher. Eventuell führt ein unterschiedlicher Fokus der Wirtschaftsberichterstattung zu einer geringeren Orientierung an der Wirtschaftsberichterstattung seitens der Wirtschaftsexperten. Zu den Themen der SRF Tagesschau liess sich vor 2007 zeigen, dass diese mehrheitlich auf einzelne Grossunternehmen und Branchen konzentriert war (Sommer et al., 2010), was einen fehlenden Einfluss der Berichterstattung auf Wirtschaftserwartungen zur allgemeinen Wirtschaftslage oder Konsumausgaben erklären kann. Vermutlich hat sich dieser Fokus nach Beginn der Finanzkrise geändert, wie die Erhöhung der SRF-Medienberichte zur Wirtschaftslage nach 2007 nahelegt (s. Abbildung 1). Der Einbezug der jeweiligen Themen und Frames der Themen der Berichterstattung sowie weiterer Nachrichtenmedien kann hierzu weitere Einblicke ermöglichen. Mit auf der Frame-Ebene fokussierten, hochfrequenteren Analysen könnte auch der Unterschied der Vorhersagekraft zwischen der ARD Tagesschau sowie ZDF heute erklärt werden, da sich beide Nachrichtensendungen zumindest kaum auf der Ebene von Themenkategorien unterscheiden.

Durch den verwendeten zeitreihenanalytischen Ansatz und Granger Kausalitätstest lässt sich technisch lediglich eine Prognosequalität der Tonalität der Wirtschaftsnachrichten auf Expertenmeinungen für den jeweiligen Zeitraum ableiten. Zudem kann ein ökologischer Fehlschluss auf Grundlage der aggregierten Sekundärdaten vorliegen, da die tatsächliche Mediennutzung der vom ifo befragten Wirtschaftsexperten nicht bekannt ist. So können Daten auf aggregiertem Niveau Medieneffekte

überschätzen. Das „Paradox der Medienwirkungsforschung“ (Maurer, 2004) zeigt, dass Medieneffekte in Individualanalysen deutlich schwächer sind als in Aggregatanalysen. Folglich könnten Ergebnisse zum Einfluss von Wirtschaftsnachrichten auf Experten mit Individualdaten einen schwächeren Zusammenhang aufweisen. Zusätzlich könnte auf Individualdatenebene auch die tatsächliche Nachrichtennutzung von Experten kontrolliert werden.

Die Ergebnisse zeigen, dass neben der Wirtschaftsberichterstattung auch im hier gemessenen Maximum von 71 Prozent noch Potenzial für weitere Einflussfaktoren besteht. Die Vielzahl der Einflussfaktoren auf Wirtschaftserwartungen konnte in der vorliegenden Untersuchung nicht reduziert werden. Weitere Studien sind notwendig, um z.B. die Fülle an Informationsquellen, die Glaubwürdigkeit des Mediums, das individuelle Vorwissen etc. in Relation zur Wirtschaftsberichterstattung zu stellen. Zusätzlich sollte auch die Berichterstattung anderer Medienkanäle wie Tageszeitungen, Magazine oder Online-Nachrichten sowie der Professionalisierungsgrad des jeweiligen Publikums in zukünftige Studien einbezogen werden.

Anhang 1: Auszug aus dem Fragebogen der World Economic Survey des ifo Institutes, inkl. der Werte der Antwortmöglichkeiten

Data requested for

1. This country's **general situation** regarding	present judgement			compared to the same time last year			from now on: expected situation by the end of the next 6 months		
	good	satis-factory	bad	better	about the same	worse	better	about the same	worse
- overall economy	**9☐**	**5☐**	**1☐**	**9☐**	**5☐**	**1☐**	**9☐**	**5☐**	**1☐**
- capital expenditures	**9☐**	**5☐**	**1☐**	**9☐**	**5☐**	**1☐**	**9☐**	**5☐**	**1☐**
- private consumption	**9☐**	**5☐**	**1☐**	**9☐**	**5☐**	**1☐**	**9☐**	**5☐**	**1☐**

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Sales Drive Advertising Expenditures: Evidence for Consumer Packaged and Durable Goods in Germany

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Abstract

The relation between sales and advertising is both complex and diverse. Whether advertising activities drive or follow sales is still unclear. We uncover this relation distinguishing between consumer packaged goods (CPG) and durable consumer goods (DCG) industries. We fit vector autoregressive models to sales and advertising expenditures of four CPG and three DCG industries in Germany from 1991 q1 to 2009 q4. Findings reveal that advertising expenditures do not increase total sales of industries according to the distribution hypothesis. According to the deterministic view, advertising budgeting is often influenced by previous sales and partly by future sales expectations. We conclude that past sales and partly sales expectations may change company and marketing goals that eventually affect the use of strategic communication instruments such as advertising.

Keywords: advertising budgeting, advertising spending, sales response, activist view, deterministic view, manufacturing industry, organizational behavior, marketing strategy, business cycle

1. Introduction

Advertising can be understood as a sub-discipline of strategic communication "which is defined as the purposeful use of communication by an organization to fulfill its mission" (Hallahan, Holtzhausen, van Ruler, Verčič, & Sriramesh, 2007, p.3). For businesses, the economic value of advertising is to the fore and its impact on performance indicators such as consumption or sales has been widely discussed (Brierley, 2006; Dutt, 2008; Turner, 2000; Wilkie & Moore, 2007). Current knowledge indicates a complex relation between sales and advertising. However, from both a theoretical and empirical point of view, no conclusion can be reached regarding the direction of influence. Two assumptions about the advertising-sales relation are in conflict. First, the activist view states that advertising stimulates demand and therefore causes sales. Additionally, the distribution hypothesis predicts no impact of advertising on sales on an aggregate level (Simon, 1970). From this perspective, advertising can only drive sales *within* a market or industry. Second, the deterministic view expects that higher sales lead to higher advertising expenses. This idea conforms to the practitioners' rule of thumb to use a certain share of past sales for advertising expenditures. Therefore, sales should drive advertising. In this regard, scholars showed that advertising expenditures lead sales, consumption, or GDP (see e.g., Taylor and Weiserbs 1972 as well as Molinari and Turino 2006 for U.S. data, Rehme and Weisser 2007 for German data). However, others find the exact opposite, i.e., a causal relation from consumption to advertising expenditures (see e.g., Quarles and Jeffres 1983 in a cross-national study; Ashley et al. 1980 and Hsu et al. 2002 for U.S. data; O'Donovan et al. 2000 for New Zealand data).

We argue that one of the reasons for the ambiguities could be ascribed to the high level of data aggregation that might obscure differences in the advertising-sales relation for different industries. We therefore suggest analyses on meso, i.e., industry level. Our research objective is to disclose the advertising-sales relation for product groups with long and short purchase frequencies on industry level. By doing so, we pick up on a connotation of the distribution hypothesis stating that advertising can affect sales only *within* a sector or product category. Additionally, we take into account that properties of durable versus consumer packaged goods differ considerably which affects consumers' buying habits, advertisings' effectiveness, and firms' advertising behaviour, accordingly. Last but not least, since none of the above mentioned frameworks (activist vs. deterministic view, distribution hypothesis) acknowledges diametrical developments of advertising and sales curves, we incorporate research on the usage of advertising decision models. Future-oriented budget setting

approaches can explain why sales and advertising might not develop in alignment with each other.

Empirically, we analyse the direction and strength of the relation between advertising and sales with quarterly data on four consumer packaged goods (CPG) and three durable consumer goods industries (DCG) in Germany. The study's goals are 1) to provide a more detailed picture about the advertising-sales relation by focusing on industry level data instead of national level data, and 2) to provide empirical evidence for or against the assumption that advertising behaviour differs between industries due to differences regarding the properties of goods and advertisers' budgeting strategies, accordingly.

The article is structured as follows: First, we discuss previous findings on the activist and deterministic view on the advertising-sales relation and contrast these views with advertising budgeting practices. Second, we discuss different product characteristics and consumer behaviour of CPG and DCG and findings on the advertising-sales relation on industry level. From this discussion, we derive a hypothesis and a research question. Data and analyses are explained in section 4. Results are described in section 5 and discussed in section 6. We summarize and draw conclusions in section 7.

2. Literature Review

2.1 Research on National Level

2.1.1 Activist vs. Deterministic View

The activist point of view regards advertising as a tool to activate demand by diffusion of knowledge and influencing consumers' inter-temporal preferences (Bagwell, 2001; Jones, 2007; Kopf, Torres, & Enomoto, 2011). Studies on industry level assume that advertising persuades customers to purchase (Balasubramanian & Kumar, 1990; Jolodar & Ansari, 2011)—and this assumption is also widespread among marketing practitioners (Ewing & Jones, 2000). When advertising activities or expenditures increase, sales will increase as well. The deterministic view, however, assumes that higher sales lead to more advertising activities and vice versa: "whenever manufacturers realize more revenues from sales, they tend to spend more on advertising" (Hsu et al., 2002, p.187). This deterministic assumption is affirmed by studies showing a strong economic dependency of advertising expenditures on a national level (Ashley et al., 1980; Deleersnyder, Dekimpe, Steenkamp, & Leeflang, 2009; Hsu et al., 2002; O'Donovan et al., 2000; Picard, 2001; Quarles & Jeffres, 1983; Tellis & Tellis, 2009). Yet other studies on a national level show that advertising expenditures are pro-actively leading consumption according to the activist view (Lamdin, 2008; Molinari & Turino, 2006; Rehme & Weisser, 2007; Sturgess & Wilson, 1984; Taylor & Weiserbs, 1972). In addition to one-directional relations, there is evidence of a two-way causality (Jung & Seldon, 1995) or no causality at all (Chowdhury, 1994).

Moreover, some studies do not consider advertising as being able to increase total consumption. Rather, advertising "does no more than affect how people 'spread around' the sum they make available for spending" (Simon, 1970, p.204). According to this distribution hypothesis, advertising expenditures allocate consumption only across products or services within a single category or sector, rather than increase aggregate consumption within the economy (Broadbent, 2008; Chowdhury, 1994). This is because an increase in advertising by one company may reduce the sales of competitors who may then react with an increase in their own advertising activities (Galbraith, 1967, p. 216; Bagwell, 2001, p.30).

To sum up, the activist and deterministic view explain the following scenarios: When, according to empirical evidence, advertising expenditures *precede* sales, this could be interpreted as evidence

a) for the activist view: If advertising activities increase (decrease), sales increase (decrease) as a result.

When, according to empirical evidence, advertising expenditures *follow* sales, this could be interpreted as evidence

b) for the deterministic view: If sales increase (decrease), advertising expenditures can increase (decrease) as a result.

However, macro level analyses did not provide a clear answer to the advertising-sales relation. Both the activist and the deterministic view lack an explanation for anti-cyclical advertising and other cases when advertising expenditures increase but sales decrease and vice versa.

2.1.2 Advertising Budgeting Practices

The advertising budgeting process can be described as decision making under uncertainty (Farris & Buzzell, 1979; Farris, Verbeke, Mdickson, & van Nierop, 1998; Kienzler & Lischka, 2013) and is based on decision maker's beliefs and data (Hutchinson, Alba, & Eisenstein, 2010, p.627). Reviewing advertising budgeting practices, not only past but also *expected* sales influence the amount of advertising expenditures. Whereas

advertising budgeting methods used to be rather unsophisticated up to the 1980s and based on percentage-of-sales or affordable amount of money, more complex methods such as the objective-task method has been increasingly used particularly amongst large companies (Cheong, Kim, & Kim, 2013; Helgesen, 1992; Hung & West, 1991). To set advertising budgets, past-oriented methods such as the affordable or percentage-of-sales method, but also present-oriented such as the competitive or unit sales method, and future-oriented such as anticipated sales or objective-task methods are used (see Table 1).

Table 1. Use of past-, present-, or future-oriented advertising budgeting methods

	Judgment	Measurement	Judgment	Competitive	Sales	Competitive	Sales	Sales	Objective-task
	Arbitrary		Affordable	Competitive/absolute	% of last year's sales	Competitive/relative	% of anticipated sales	Unit sales	Objective-task
Advertising budgeting method (Cheong, Kim, & Kim, 2013)	Based on what is 'felt' to be necessary	Use of mathematical techniques	An 'all you can afford' approach	The budget is set in line with the market share	Set % of sales from the previous financial year	The budget is set in line with that of your closest rival	Set % of the firm's anticipated sales	A fixed % of the unit price multiplied by the projected sales volume	Spending is in accordance with what is required to meet the objectives
Time reference	not applicable	not applicable	Result of past	Result of past	Past	Present	Future	Future	Future
	%	%	%	%	%	%	%	%	%
Cheong et al. (2013, p. 45), U.S., n = 169 marketing managers	46.1	12.0	57.5	4.8	19.8	11.4	16.8	5.4	41.9
Prendergast et al. (2006, p. 171), China, n = 206 advertisers	27.2	28.6	62.6	7.3	28.2	26.2	44.2	21.4	38.8
West and Prendergast (2009, p. 1465) UK, n = 77 advertisers	6.5	20.8	20.7	0.7	2.6	6.5	9.0	2.6	23.9
Mean	26.6	16.4	46.9	4.3	16.9	14.7	23.3	9.8	34.9
Sum per time reference	43.0		68.1			14.7	68.0		
Advertising-sales relation will provide support for …	no clear leading/lagging relation		deterministic view*			no clear leading/ lagging relation	activist view**		

*assuming that advertising spending occurs pro-cyclical.

**assuming that future expectations are correct/goals are achieved.

Of these methods, the past-oriented affordable methods as well as the future-oriented methods are used most often supporting either the deterministic or the activist view. However, the budgeting has to occur pro-cyclical with the sales development and future sales expectations have to be correct. Otherwise, no positive advertising-sales relation will be detected from data analyses. Further, the arbitrary, the measurement and the present-oriented budgeting setting method may not reveal an advertising-sales relation at all. If advertisers expect fewer sales e.g. due to economic crises, they might cut down their advertising budgets. However, anti-cyclical advertising strategies would lead to an increase of advertising expenditures during crises. Therefore, the chronological cause-and-effect-chain of the advertising-sales relation is reversed. If sales expectations are taken into account, new interpretations for empirical results on advertising-sales relations emerge. Keeping in mind, that managers' assumptions on sales development can be correct or incorrect, the following scenarios are conceivable:

When, according to empirical evidence, advertising expenditures *precede* sales, this could be interpreted as evidence

c) for a future-oriented pro-cyclical budget setting approach: If advertisers expect fewer (more) sales, they will cut down (increase) their advertising budgets. If their assumptions are correct, sales will drop (increase) accordingly. If sales rise (decrease) unexpectedly, their assumptions have been incorrect.

d) for a future-oriented anti-cyclical budget setting approach: If advertisers expect fewer (more) sales, they will increase (decrease) their advertising budgets. If their assumptions are correct, sales will increase (drop) accordingly. If sales decrease (rise) unexpectedly, their assumptions have been incorrect.

I. e., although the activist point of view prompt the perception that advertising budgets are set independently from past sales, quite the reverse could be true.

When, according to empirical evidence, advertising expenditures *follow* sales, this could be interpreted as evidence

e) for a past-oriented advertising budgeting setting method predicted by the deterministic view: If advertisers realized more (fewer) sales in the past they can afford to spend more (less) for advertising in the future.

Figure 2 summarizes the five scenarios a) to e) for the temporal relation of advertising and sales.

2.2 Research on Industry Level

Advertising-sales relations differ on product or industry level because of different product characteristics and consumer behaviour. As shown in Figure 1, CPG and DCG differ in terms of their useful life, their need of explanation, frequency of purchase, consumers' buying behavior and their perception of the purchase (Leischner, 2009, p. 1080; Murphy & Enis, 1986). CPG have a short useful life and they are more or less self-explanatory and bought regularly and often (Broadbent, 2009, p. 163). Prices of CPG are—in relation to a household's disposable income—low (Berndt, 2005, p. 27). Thus, sellers generate benefits through high sales volumes and try to maintain consumer's loyalty through strong brands (Broadbent, 2009, pp. 162–163). Whereas the initial purchase of a specific CPG that is new to the customer demands some conscious decision making, subsequent purchases of the same brand are routine and habitual—provided that the customer was satisfied with the product. DCG have a longer useful life, are substantially more expensive, and are bought less frequently. Because of the lacking routine of purchases and especially due to the higher costs, buying DCG is perceived as risky (Grewal, Mehta, & Kardes, 2004, p. 110). Consequently, customers engage themselves in an extensive and complex purchase decision with a high level of involvement, i.e., they search and process information actively (Kotler, Keller, & Bliemel, 2007, p. 292). As activists consider advertising as means to provide information, advertising could create demand and finally sales for DCG. At the same time, durable sales depend on income (McCollough, 2007) and the economic situation (Cook, 1999; Dhawan & Jeske, 2008; King & Rebelo, 1999; Krishna & Yavas, 2004; Power, 2004; Stock & Watson, 1999). Whereas CPG are necessities, the purchase of DCG can be postponed (see e.g., Bryant & Zillmann, 1994, pp. 17–18; Petersen & Strongin, 1996, p. 190). Hence, sales for DCG should more strongly depend on household income than for CPG. Also the advertising strategy and budgeting should follow different patterns between CPG and DCG.

Studies that differentiate among product characteristics find different advertising elasticities depending on purchase frequency of products. Previous studies reported short- or long term advertising elasticities for different product categories depending on purchase frequency (e.g. Sethuraman et al. 2011 for food, nonfood, pharmaceutics, durables, and service on firm level data, Draganska and Klapper 2011 for German coffee brands, Fischer and Albers 2010; Cavusgil and Calantone 2011 for pharmaceutics on brand level). Sethuraman et al. (2011) summarize in a meta-analysis that the advertising elasticity is high for durable goods, followed by pharmaceutics and service goods. Frequently purchased, low-involvement food and nonfood products have the lowest advertising elasticity (Sethuraman et al., 2011, p. 466). On industry level, however, Engle and Ambler (2002) find no significant relation between advertising and market growth for chocolate markets. Also, Wilcox et al. (2009) cannot reveal a relationship between aggregate soft drink advertising expenditures and soft drink consumption. But Andrews and Franke (1991) report a positive advertising elasticity for tobacco in Germany in the 1960s and 1970s using data on an industry level. They also show that the advertising elasticity decreased over time.

Thus, previous research on industry level shows evidence for different advertising-sales relations across industries. However, only the activist view is considered within previous industry studies and a possible deterministic relation is ignored.

In difficult economic times, consumers tend to cut back their spending, i.e., to increase their saving rates (Kaytaz

& Gul, 2014; evidence for Germany in Poser, 1983, p. 167). Lamey et al. (2007, p. 3) conclude, that particularly "at the beginning of a recession, consumers have a strong incentive to limit their spending and wait for better times." However, these cuts are not spread equally among all product categories, but rather affect DCG than CPG due to their different product characteristics. Consumer spending is influenced by income and consumer confidence which in turn depend on the economic climate (Quelch & Jocz, 2009; Kaytaz & Gul, 2014).

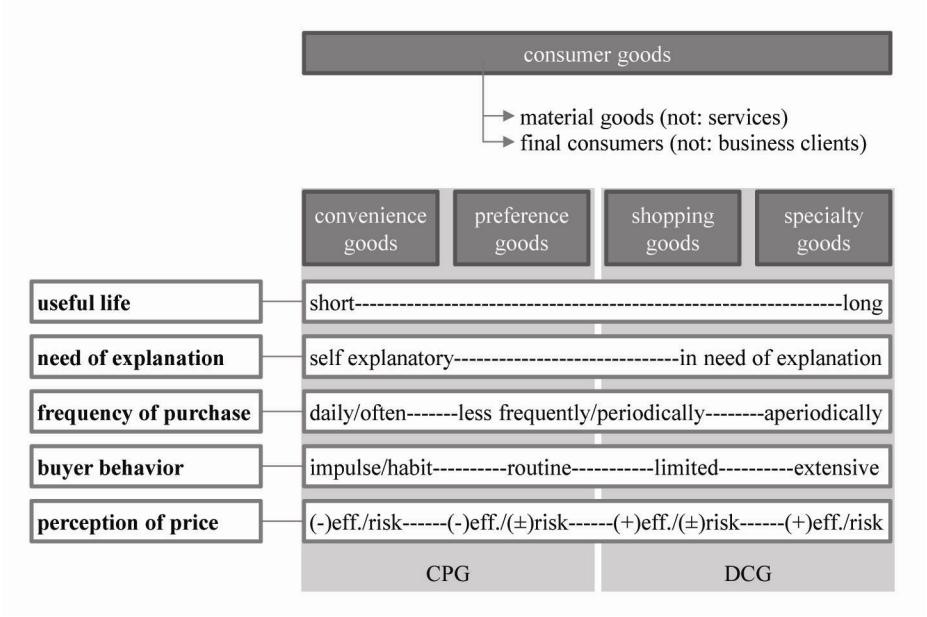

Figure 1. Categorization of consumer goods

Description: (-)=low; (±)=medium; (+)=high, source: compiled by the authors based on Leischner (2009) as well as Murphy and Enis (1986).

3. Hypothesis and Research Question

Figure 2 summarizes our literature review and provides the theoretical framework for our study. We address shortcomings of previous research derived from the activist vs. deterministic school on a less aggregate level of analysis.

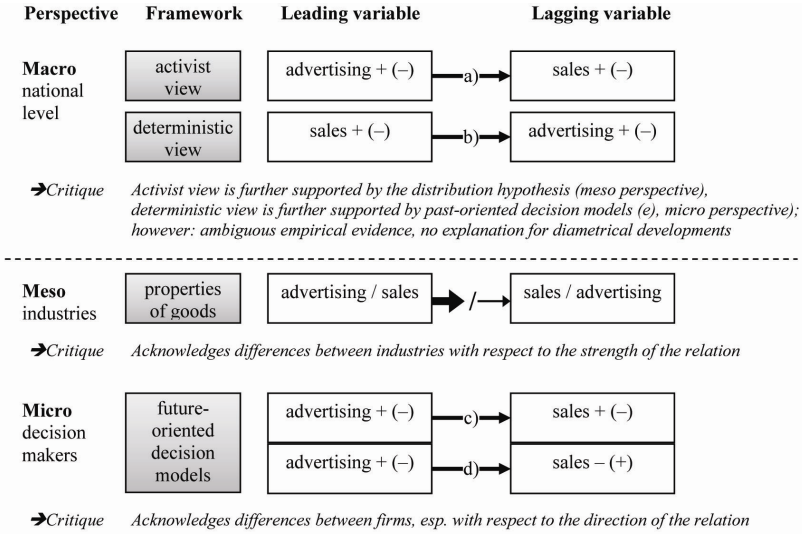

Figure 2. Theoretical framework: Scenarios for temporal relations between advertising expenditures and sales

In detail, we draw the following conclusions: Theory and previous research have shown that due to different product characteristics, sales for DCG depend more strongly on the economic situation than sales for CPG, and that advertising elasticities are stronger and more stable over time for DCG compared to CPG. From these insights, we formulate the following hypothesis:

H1: The advertising-sales relation is stronger for DCG than for CPG.

Moreover, we conclude that the relation between advertising and sales should be further investigated on industry level, and that aggregate advertising expenditures might pro-actively lead or re-actively lag sales depending on the current economic situation of a firm and its advertising budgeting approach. Therefore, we ask:

RQ1: What is the direction of influence between advertising expenditures and sales in different industries?

4. Method

4.1 Sample and Procedures

This study analyzes the relation between advertising expenditures by industry as an indicator of advertising activity and sales, controlling for available household income, GDP, and total exports for German industries. Following van der Wurff et al. (2008), exportation has to be taken into account: products that are exported are not advertised in the home country which is why the impact of sales on advertising should be weaker. This is especially important for the German automobile industry. The observed industries comprise food, drinks, tobacco, as well as health and pharmaceutics for CPGs and textiles and clothing, shoes and leather goods, as well as automobiles for DCGs. Data from Nielsen Media Research show that these industries have been among the most advertising-intensive ones for years in Germany (Zentralverband der deutschen Werbewirtschaft (ZAW), 2004; Zentralverband der deutschen Werbewirtschaft (ZAW), 2011) and several authors focused on these industries, too (see chapter 2.2), which gives us some points of reference for the evaluation of our own results. The advertising-sales relation is analyzed between the first quarter of 1991 and the fourth quarter of 2009, including the dot-com crisis in 2000 and its impact on the German advertising market. The reported observation periods are shorter due to deseasonalizing advertising expenditures, lag structure of the VAR model, missing data (tobacco and automobile), and excluding the period of car-scrap bonus for automobiles. Due to the German reunion in 1990, only German data from 1991 onward are used. Since advertising expenditures strongly decrease from 2010 onwards (as a consequence of the financial crisis) and a lack of data for the quarters thereafter, the observation period ends in 2009 q4. Compared to annual data, quarterly data may contain additional information on causal relations that can occur within one year (O'Donovan et al., 2000).

German data were selected due to the size of Germany's economy and the lack of research on German data, compared to the U.S. or U.K. data. Behind the United States, China, and Japan, Germany has the fourth largest economy in the world and the largest in Europe. Therefore, Germany may be a good comparison for results from the United States which has the largest economy in the world. Also, results can be compared to several studies on industries in European countries similar to Germany in political, economic, or social conditions.

Our data stem from different sources: data on gross advertising expenditures are from Nielsen Media Research, as published in *Media Perspektiven*. Sales index, GDP, and exports are from Eurostat. For food, the sales index was only available combined for food and forage production. Available household income is from the German Federal Statistical Office. All data in monetary values are deflated by the OECD Consumer Price Index to eliminate possible inflation noise.

Seasonally adjusted data series of advertising expenditure and sales index of each industry are plotted against time in Figure 3 and Figure 4. Most of the advertising expenditure curves show a severe drop in the middle of the series around the years 2000/2001 after the dotcom crisis occurred. The higher the expenditure level, the more severe was the cut back of advertising expenditures. For evaluating relations with advertising, the effect of this dotcom break is handled in dummy variables. Within the observation period, automobile, food, and health and pharmaceutics advertising expenditures were growing until 2000 (see Figure 3). After 2000, only health and pharmaceutics, food, and partly automobile advertising expenditures show a positive trend.

Sales figures are indexed to 100 for 2005 (see Figure 4). Sales for food, drinks, automobile, health and pharmaceutics, and tobacco show a positive trend throughout the observation period. Textiles and clothing sales grow negatively. Shoes and leather goods' sales are mostly stable but also grow negatively towards the end of the observation period. Health and pharmaceutics as well as the tobacco industry are regulated in terms of distribution and advertising in Germany.

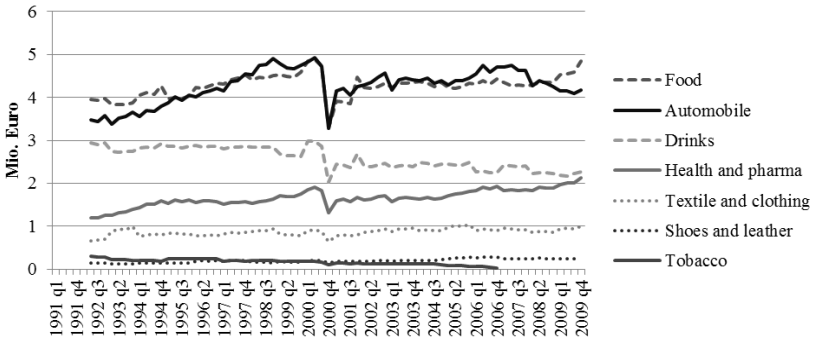

Figure 3. Advertising expenditures per industry, seasonally adjusted

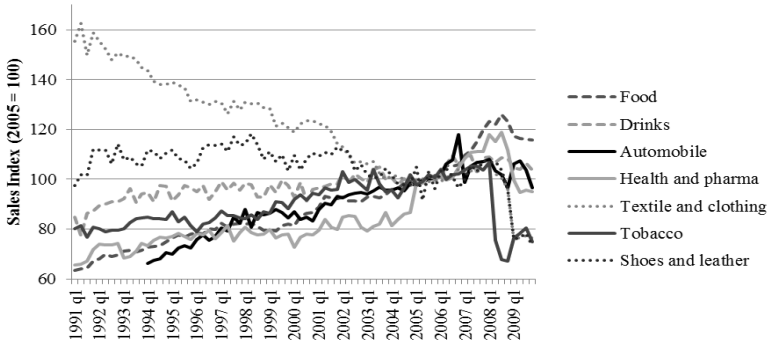

Figure 4. Sales index per industry, seasonally adjusted

4.2 Measures

To investigate the strength of the relation and the causal direction between real GDP, consumption, and advertising expenditures, VAR models are estimated and Granger causality tests are applied. VAR coefficients will reveal whether a causal influence is *positive* or *negative*. The more lags are significant and the higher the coefficients—given that the signs are the same—the *stronger* the relation. Within the following section, we briefly describe the VAR analysis and tests we used. Granger causality is used to detect whether a variable can be better predicted using another variables' past and therefore is a second inference measure for temporal leading or lagging relations between sales and advertising. The better the past of one variable predicts the future of another the stronger we interpret their relation. Granger causality reveals the *direction* of influence comparing the forecasting ability of e.g. sales for future advertising expenditures and vice versa.

In VAR models, each variable's dynamic development is explained by its past development as well as that of others without the a priori definition of dependent or independent variables (Sims, 1980). A VAR model ((1) and (2)) for sales (S) and advertising expenditures (A) including time lags, control variables household income (I), GDP (G) and exports (E), and accounting for seasonal variation (SV) and the dot-com break (D) can be written

$$S_t = \mu_{1t} + \lambda_{11}S_{t-1} + \ldots + \lambda_{1p}S_{t-p} + \sigma_{11}A_{t-1} + \ldots + \sigma_{1p}A_{t-p} + \pi_{11}I_{t-1} + \ldots + \pi_{1p}I_{t-p} + \alpha_1 G_t + \beta_1 E_t + \eta_1 SV_t + \varsigma_1 D_t + u_{1t} \quad (1)$$

$$A_t = \mu_{2t} + \sigma_{21}A_{t-1} + \ldots + \sigma_{2p}A_{t-p} + \lambda_{21}S_{t-1} + \ldots + \lambda_{2p}S_{t-p} + \pi_{21}I_{t-1} + \ldots + \pi_{2p}I_{t-p} + \alpha_2 G_t + \beta_2 E_t + \eta_2 SV_t + \varsigma_2 D_t + u_{2t} \quad (2)$$

where μ is the intercept, λ, σ, π, α, β, η, and ς are coefficients, and u is the noise term. For each industry, one VAR model with all dependent, independent, and control variables is estimated. This way, many regressors are included in the model, but a maximum of mutual control is assured.

As an important demand, data must fulfill the condition of (weak) stationarity (Wooldridge, 2009). The commonly used ADF test is performed to detect unit roots and the KPSS test assesses trend and level stationarity for each time series. The first difference of the series ($Y_t - Y_{t-1}$) are stationary according to ADF and KPSS test. For better comparison of coefficients between VAR models, all data are converted into percent growth rates ((($Y_t - Y_{t-1}$)/Y_{t-1})*100) which are also stationary according to ADF and KPSS test.

In addition, seasonal components and, for advertising expenditures, if necessary, dotcom outliers are eliminated from the series by including external dummy variables in the specified model to avoid spurious correlations (Kittel & Winner, 2005). Therefore, the impacts of advertising expenditures and consumption within the model are free from seasonal as well as dot-com crisis effects.

The lag order of the VAR models is selected using final prediction error, Akaike's information criterion, Schwarz's Bayesian information criterion, and the Hannan and Quinn information criterion lag-order selection statistics. In addition, Wald lag exclusion statistics are obtained so as to exclude insignificant lags from the model to increase efficiency. Since the autocorrelation of residuals can lead to a misinterpretation of the relation between variables, the Durbin-Watson and Lagrange multiplier tests are performed to assure that no further information is contained in the residuals. The VAR models are estimated with the data analysis software Stata 12 using a small-sample degrees-of-freedom adjustment.

5. Results

For the hypothesis (H1: The advertising-sales relation is closer for DCG than for CPG.) and the research question (RQ1: What is the direction of influence between advertising expenditures and sales in different industries?), we present the advertising-sales results of the VAR model in Table 2. The *F* value of the Granger causality test is reported in the first line of each tested direction. Significant coefficients of past lags are reported below. Autoregressive influences are not reported for brevity reasons.

With respect to hypothesis 1, we focus on the coefficients in Table 2: The higher the coefficients and the higher the number of significant coefficients, the stronger the relationship between the two variables. In this sense, the closest relation between advertising and sales can be found for the automobile industry. Sales three quarters ago (.530) and one year ago (.667) are especially influential on advertising expenditures, but also the previous two quarters (.310 and .338) have a positive impact on advertising expenditures. For the textiles and clothing industry, sales one year ago have a significant negative impact on advertising expenditures (-5.33). That is, increasing sales lead to decreasing advertising budgets and vice versa. However, we also find tendencies for a weak positive impact of advertising expenditures of the previous quarter on current sales (.102). For the remaining DCG industry (shoes and leather goods), we only have evidence for a small and negative effect (-.146) of previous advertising expenditures on sales.

When we turn to the CPG industries, the picture is unclear: Food sales of the previous quarter impact advertising expenditures negatively (-.365) which has some similarities to the results for the textile and clothing industry. For the drinks industry, sales from three quarters ago positively impact advertising expenditures (.339). However, similar to the shoes and leather goods industry, we also find a negative effect from past advertising expenditures on sales (-.222). The regulated CPG industries tobacco as well as health and pharmaceutics do not show any advertising-sales relation.

Overall, support for H1 is weak. Advertising expenditures strongly depend on sales for the automobile industry—which is the product group with the lowest purchase frequency under consideration. For the tobacco and health and pharmaceutics industry, we find no advertising-sales relationship at all as suggested for CPG. Results for these three industries could be interpreted as support for H1. However, for other DCG and CPG industries, we find sporadic influences between the two variables. In particular, there is no clear pattern for stronger vs. weaker advertising-sales dependencies for durable vs. consumer packaged goods.

To answer the research question on the direction of influence, comparisons between the first and second part of Table 2 as well as Granger causality tests (see *F*) are relevant. Regarding the latter, only in the automobile industry, changes in past sales Granger cause current changes in advertising expenditures (see *F*). In no other DCG or CPG industry can Granger causality be detected. For the drinks as well as textiles and clothing industry, we find weak evidence for mutual relationships since we have significant coefficients in both equations. For the shoe and leather goods industry, we only find evidence for a negative impact of past advertising expenditures on present sales. The exact opposite direction is manifested in the drinks industry where previous sales seem to impact advertising expenditures negatively.

With respect to the theoretical models, only results for the automobile industry are clearly in line with the deterministic point of view. In all other cases, we have evidence for mutual and/or negative relationships.

Table 2. Advertising-sales relation on industry level

Characteristics		Purchase frequency high / Postponability low				Purchase frequency low / Postponability high		
Good		CPG				DCG		
Industry		Food	Drinks	Tobacco	Health and pharmaceutics	Textiles and clothing	Shoes and leather goods	Automobile
Observation period		1993 q4 – 2009 q4	1993 q4 – 2009 q4	1993 q3 – 2006 q4	1993 q3 – 2009 q4	1993 q4 – 2009 q4	1993 q4 – 2009 q4	1995 q4 – 2008 q1
Past sales	F	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	3.541*
↓	λ_{2t-1}	-.365*	n.s.	n.s.	n.s.	n.s.	n.s.	.310°
Present	λ_{2t-2}	n.s.	n.s.	n.s.	n.s.	excl.	n.s.	.338°
advertising	λ_{2t-3}	n.s.	.339*	n.s.	n.s.	excl.	excl.	.530*
expenditures	λ_{2t-4}	n.s.	n.s.	n.s.	n.s.	-.553*	n.s.	.667**
	λ_{2t-5}	n.s.	n.s.	excl.	excl.	excl.	n.s.	excl.
	λ_{2t-6}	excl.	excl.	excl.	excl.	excl.	excl.	n.s
Past advertising	F	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
expenditures	σ_{1t-1}	n.s.	n.s.	n.s.	n.s.	.102°	-.146°	n.s.
↓	σ_{1t-2}	n.s.	-.222*	n.s.	n.s.	excl.	n.s.	n.s.
Present sales	σ_{1t-3}	n.s.	n.s.	n.s.	n.s.	excl.	excl.	n.s.
	σ_{1t-4}	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
	σ_{1t-5}	n.s.	n.s.	excl.	excl.	excl.	n.s.	excl.
	σ_{1t-6}	excl.	excl.	excl.	excl.	excl.	excl.	n.s

Description: excl.=lag excluded from estimation, n.s.=not significant on 90% level, °=significant on 10% level, *=significant on 5% level, **=significant on 1% level, source: authors.

6. Discussion

It is not possible to generalize the advertising-sales relation in CPG and DCG. Although advertising expenditures strongly depend on past sales for the automobile industry, DCG advertising expenditures do not show a sales dependency throughout, but also CPG advertising expenditures depend on sales. However, contrary to the deterministic view, the relation is not always positive except for the drinks industry. Consequently, negative influences of past sales as found for food as well as shoes and leather goods might indicate an anti-cyclical advertising strategy which is not accounted for by the deterministic view.

With respect to the activists' point of view, we find only punctual evidence in the textiles and clothing industry. However, this result is at the same time counteracted by evidence for the opposite direction of influence. Overall, advertising expenditures were not found to increase total sales of industries according to the activist view as in Jolodar and Ansari (2011). This result is in line with the distribution hypothesis (Broadbent, 2008; Simon, 1970). High market saturation might account for the inability of advertising to further stimulate demand. Nevertheless, a shift of market shares caused by advertising activities might be detected *within* an industry. On a meso perspective, replicas of this study could be performed with data from growing markets in order to clarify if or to what extent the degree of market saturation affects adverting's ability to stimulate sales.

Despite the somehow cluttered results, interesting patterns are observable. When CPG sales influence advertising expenditures this impact is rather short-term. When DCG sales influence advertising expenditures this impact is rather long-term. This is in line with Sethuraman's et al. (2011) meta-analysis showing that that the advertising elasticity is higher for durable goods than for frequently purchased goods.

The results give also rise to further considerations with respect to the budgeting process on firm level—especially for those cases where we find negative signs indicating reversed relations between advertising and sales that likewise cannot be explained by the activist or deterministic perspective. E. g., the two incidences where past sales have a negative impact on advertising (food as well as textile and clothing industry) could be interpreted as past-oriented, anti-cyclical advertising strategies. Research has shown the effectiveness of anti-cyclical advertising (Frankenberger & Graham, 2003; Kamber, 2002) or proactive approaches during recessions (Srinivasan, Rangaswamy, & Lilien, 2005) which was emphasized again more recently (Quelch & Jocz, 2009). However, both seem less prominent among practitioners. Future research could reveal the factors that hinder the usage of anti-cyclical advertising strategies.

There are also two values indicating a negative impact from past advertising expenditures to current sales for drinks as well as shoes and leather goods. This could be construed as a result of future-oriented budget setting approaches as outlined in section 2.1: If advertisers expect correctly that sales will decrease (increase) "tomorrow", and an anti-cyclical strategy is pursued, they might increase (decrease) their advertising budgets "today". If a pro-cyclical advertising strategy was intended, assumptions about the future development of sales must have been wrong. In any case, for these two scenarios, a true causal relation (extending a Granger causal relation) can be precluded. However, sales expectations might serve as an explanatory variable for advertising expenditure changes.

It has to be kept in mind that changes in advertising expenditures rely on many further factors such as the overall communication strategy, market structure, pricing strategy, product life cycle, advertising goals etc., which may vary within industries and among companies or over time. Furthermore, advertising activities might not always aim directly at sales effects or might fail to do so. Although agency practitioners believe that advertising has to be creative and varied over time to work effectively (Nyilasy & Reid, 2009a; Nyilasy & Reid, 2009b), advertising expenditures and copy as well as advertising effectiveness and sales are related but do not cause one another. Different copy with different communication goals for the same brand may have vastly different sales responses (Jones, 2004; Taylor, Kennedy, & Sharp, 2009) and advertising expenditures are only one factor for advertising effectiveness. More research is necessary to explain advertising budgeting decision making. This study did not account for other communication instruments used to communicate to consumers due to a lack of data and complexity of modeling. Nevertheless, advertising is one of the most important communication instruments within strategic communication for consumer goods (Kotler, 2009). Therefore we assume that incorporating other communication instruments will complement our findings but not change them fundamentally.

We believe that our findings may well be transferred to CPG and DCG industries of other countries since principles of purchase frequency and postponability of CPG and DCG are similar in any country. However, when the industries' structure or the market form greatly differs (e.g., oligopoly vs. polypoly), the sales-advertising relation may differ as well. However, differences may not only occur within industries but also within companies. Future research could further delve into the power relations within a company that might highly influence the process and size of advertising budgets. As mentioned above, anti-cyclical approaches are less often used and this could be related to managers' restricted autonomy of decision or, more generally speaking, to power relations within an organization. Accordingly, qualitative and more in-depth studies would be a welcome addition to the quantitative approaches.

7. Summary and Conclusion

This study provides insight into the advertising budgeting logic of an industry assessing the relation between sales and advertising expenditures controlling for available household income, exports, and GDP for four consumer packaged goods industries and three durable consumer goods industries. Although theory suggests a closer advertising-sales relation for DCG than for CPG, no uniform picture can be drawn from our results. We found that advertising budgeting can be forecasted by past sales and partly by future sales expectations. Past sales drive advertising expenditures in a pro-cyclical manner in the drinks and automotive industry but in an anti-cyclical manner in the food as well as textiles and clothing industry. The impact of past sales is strongest for automobile advertising expenditures which we expected from theory. Automobile advertising expenditures strongly depend on sales up to one year ago. Because car purchases depend on income and the economic situation, and are highly postponable, advertisers cut down their budgets in times of economic downturns assuming that demand and thus sales cannot be stimulated anyway.

We assume that the use of strategic communication instruments underlie past or expected sales development. To complement the activist and deterministic views we suggest an assumptionist view accounting for future-oriented advertising budgeting setting based on sales expectations. Hence, sales may change company and marketing goals that eventually affect communication goals and instruments. This close involvement of strategic communication and company success complicates disentangling the direction of influence. That is why modeling relations on industry or country level will fail to show a unified picture.

For managers, our analysis reveals advertising-sales relations for an entire industry, i.e., for all competitors' sales and advertising expenditures on average (controlling for seasonality). Therefore, future advertising expenditures of an industry can be forecasted on past sales figures of this industry. That is, when food sales decline, a typical food company will increase advertising in the next quarter. When drinks' sales decline, advertising will decline as well in three quarters. When textiles and clothing sales decline, advertising will increase the next year. When

automobile sales increase, advertising increases as well. However, for tobacco and health or pharmaceutical companies, forecasting based on past sales was not possible. Also, to forecast future sales based on advertising expenditures was rarely possible. Hence, when a company wants to stand out from the competitor's advertising budgeting strategy, they can budget their advertising expenditures contrary to the logic of their industry. Especially for the automobile industry, in times of low sales or economic downswings, advertising may keep the brand at the back of the consumers' mind and become effective as soon as the income situation improves.

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